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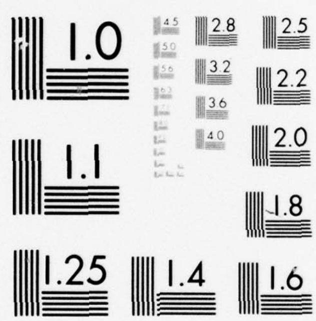

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(6) URBAN FOOD SUPPLY AND DISTRIBUTION: CHARACTERISTICS AND UTILIZATION OF FRESH FOOD MARKETS IN BANGKOK AND THONBURI.

(10) Margaret E. Crawford

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PREFACE

This report is one of a series of publications concerned with development topics in Southeast Asia. The research detailed in this report represents a portion of a larger study sponsored by the Applied Scientific Research Corporation of Thailand which dealt with an analysis of transportation systems in Thailand. This study, designated as Research Project 30, was the joint undertaking of the University of Michigan and the Applied Scientific Research Corporation of Thailand and was funded by the University from a research contract with the Geography Branch of the Office of Naval Research (Research Project Nonr 1224(56) N.R. No. 388080). Research and analysis was conducted by both Corporation and University personnel under the direction of Professor L. A. Peter Gosling, Department of Geography, University of Michigan. Co-ordination of the project publications and editorial assistance were provided by Catherine J. Baker. Inquiries regarding the publication series should be directed to the Department of Geography, University of Michigan, Ann Arbor, Michigan, U.S.A. The conclusions, opinions and recommendations of the various authors in these reports do not necessarily reflect the views of any of the sponsoring organizations.

This report, Urban Food Supply and Distribution: Characteristics and Utilisation of Fresh Food Markets in Bangkok and Thonburi, was originally part of a Ph.D. dissertation in Geography submitted by Margaret E. Crawford. Invaluable assistance was provided for this study,

as for other aspects of Project 30, by personnel of the Applied Scientific Research Corporation of Thailand. In particular, economists Mit Pramaunavorachat and Nipon Panomkarn made vital and important contributions both in conducting field research and in understanding the marketing systems under study.

Bangkok and Thonburi, the primate city par excellence and the dominating center of urbanization in Thailand, have experienced a very recent and rapid growth in population. With close to 10 percent of the country's population, they form a major center of demand and are the focus of nationwide marketing systems.

This report is concerned with one facet of urban demand, the basic need for food. It attempts to understand the organization and functioning of the urban food supply system, and deals primarily with the foci of that system, the fresh-food markets. The study is based mainly on interview data gathered in and around the marketplaces in Bangkok and Thonburi. It details both the operating and functional characteristics of individual markets and their utilization within a rapidly changing urban context.

Dr. Crawford's study identifies points of congestion in the system which faces increasing transportation problems as the volume of food demand increases. It also documents the convenience and flexibility of the traditional system in bringing food to scattered urban households, as well as the labor absorptive capacity of the marketing system itself. All of these deserve careful consideration in any planning of future urban development.

Project Director
L. A. Peter Gosling

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

LIST OF MAPS

LIST OF APPENDICES

INTRODUCTION

The rapidity with which city populations are increasing is a hallmark of the times. Everywhere the urban *milieu* represents a fusion of old and new. Constraints on change and impetus for change are interwoven in the subtleties of value systems and in the readily visible expression of technological change. The resulting urban patterns may be perceived as differing in time and space, but there are commonalities. It is one of these, the provisioning of an urban population, which this report approaches in its examination of the food supply system of Bangkok and Thonburi, primate city *par excellence* and the dominating center of urbanization in Thailand.

Bangkok and Thonburi, with a combined population approaching three million according to the preliminary findings of the 1970 Census of Thailand, is by far the largest urban center in Thailand. Not only is Bangkok-Thonburi remarkable for its size in a nation where over 80 percent of the population is rural[1] and whose urban population is found mainly in small towns, but its growth has been very rapid during the last few decades. In 1943, the population of the two municipalities

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[1]The definitions of urban and rural are those of the Census of Thailand.

was 0.78 million,[2] while in 1969 according to official estimates, it was 2.8 million.[3]

This substantial growth in the size of the urban population, a large proportion of which has moved recently from a rural setting, has led to increased demand for a variety of goods and put new pressures on existing supply systems. Basic food needs are met by a supply and distribution system operating largely through the accumulation of individual decisions rather than through co-ordinated efforts on either individual or governmental levels. This makes study of the topic difficult, since information about the food supply system to and within the cities is not readily available but must be sought from the many individuals who are involved in it. This work is then of an exploratory nature in attempting to describe the working of some aspects of the food provisioning system within the two cities. Its major focus is on _talat_, or food markets, which are crucial in the articulation of the system.

Food supplies are available to the people of Bangkok and Thonburi through a wide variety of sources such as itinerant or stationary peddlers, stall holders in food markets, merchants in general stores and coffee shops and wholesale dealers. Although individual commodities are rarely handled exclusively by one or another type of distributor, perishable foods almost always pass through one or more of the markets, or _talat_, which are scattered throughout the metropolitan area. Thus, the

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[2]L. Sternstein, "A Critique of Thai Population Data," _Pacific Viewpoint_, VI (May, 1965), 15-35.

[3]_Some Basic Facts and Figures about Bangkok and Thonburi Year 1969_ (Bangkok Municipality, 1970). (In Thai.)

talat are important centers of daily activity and are the foci in the expanding networks through which goods, money, information and people move in the patterns of urban circulation, patterns which highlight the interdependence of city and surrounding countryside. They were used as the bases for seeking information from retailers and wholesalers relating to the internal characteristics and functioning of the markets.

I. BANGKOK AND THONBURI FOOD SUPPLY

The Talat Setting

Talat are a crucial part of the present urban food supply system, and a visual impression of the *talat* setting is included here as background to a description and analysis of their characteristics and functioning.

A food market in the Bangkok-Thonburi metropolitan area today is generally located in and around a market building, or in the case of the largest markets, in a group of buildings. Selling activities are not always confined to the selling platforms, or *paeng*, but may overflow on to their temporary accretions and even continue into the surrounding shophouses and lanes. The often widely recognized official or local market name is frequently used as a general reference location particularly as street names have little importance in this respect. For the purpose of this paper the term is used specifically for the market-building centered place of exchange.

Markets holding municipal licenses should meet certain standards of layout in terms of size of *paeng*, the aisles between them and the provision of toilet and garbage facilities.[4] This results in a most

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[4] *Market Regulations* (Municipality of Bangkok, Public Health Division, n.d.). (In Thai.)

common rectangular building, roofed but with open sides, containing rows of concrete or wooden platforms rising two to three feet above the ground. Only one non-rectilinear design was found in the entire metropolitan area, and that was in an as yet unopened market in which the paeng were being constructed in hollow circular shapes.

In some markets, the owner[5] encouraged the original renters to group together according to the commodities they sold. Although it is rare to find such a separation enforced, it is also unusual to find, for example, fruit and vegetable sellers interspersed with those dealing in pork. In food markets which also include dry goods such as cloth, there is a clearly visible separation of sections. Fruit sellers tend to congregate in the entrance ways and outside the market building proper, and it is largely their goods which contribute to the changing appearance of the markets from season to season.

Although the basic stall structures provided by market owners show little variation, the display arrangements used by sellers of different commodities do vary somewhat. Most markets have a portion used only by meat sellers, and there the merchants stand behind their stalls, made conspicuous by the rails and hooks from which a part of their stock is suspended. In the rest of the market, sellers usually sit on the platforms in single rows, or in a double row back to back, surrounded by their goods in containers of many shapes and sizes. Vegetable sellers, especially, maximize the space they have for displaying a large inventory

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[5]The majority of the markets in both Bangkok and Thonburi are privately owned. Others are located on property belonging to wats, government departments and the royal family.

by tiering small containers or by adding tables or boxes to the original selling space. It is usually only the groceries sellers who use constructed shelving to store foodstuffs, such as canned goods. There are two major variations from this pattern. In the larger wholesale markets, the usual selling space is larger than the common meter and has a surface at or close to ground level. Arrangements in the unlicensed markets are often much more haphazard, with a variety of more or less makeshift tables for selling, or none at all.

At peak selling times, movement inside busy markets can be very difficult, even for pedestrians carrying no more than a shopping basket. Congestion is even greater in these markets where hawkers who do not rent paeng sit along the aisles and in the market entrances, and if good are also being received for sale the situation is even more confused, even if more apparent than real. The meeting of buyers and sellers retains some of its social function, since many of them are well known to one another, and comparative shopping, with its accompanying bargaining, creates an air of bustle in most marked contrast to the almost tangible desertion of markets where business is over for the day, or where business has never developed.

Location and Distribution of Markets

During the course of fieldwork close to two hundred markets were visited in Bangkok and Thonburi, and data relevant to food selling was gathered through interviews for 183 markets. Markets are listed in Appendix 1, and their current distribution is shown on Map 1 and on Map 2. In 1969, there were 112 licensed markets in Bangkok and 48 in

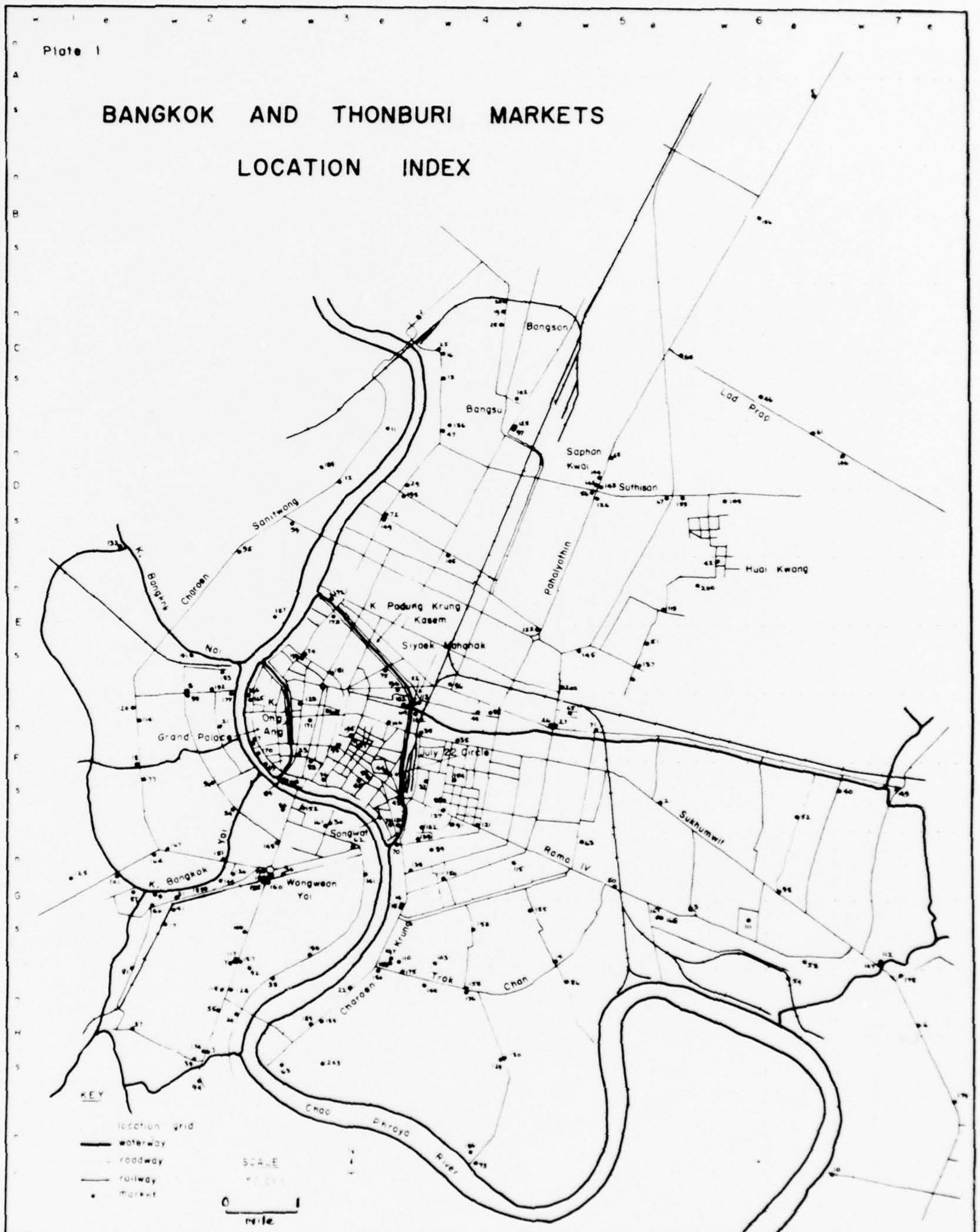
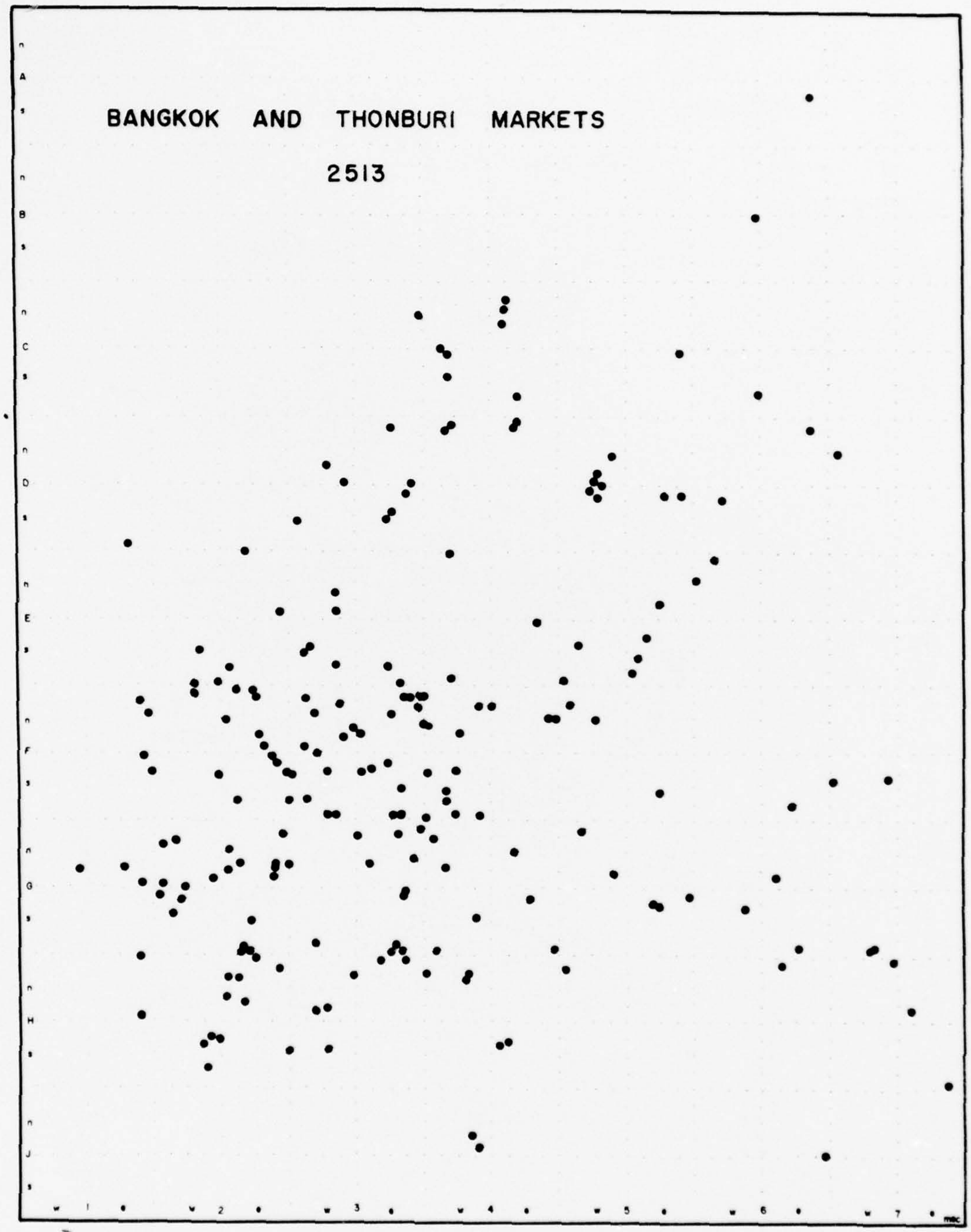


Plate 1
BANGKOK AND THONBURI MARKETS
LOCATION INDEX
Bangson
Bangsu
Lad Prao
Saphan Kwai
Suthisan
Huai Kwang
Paholyothin
Sanitwong
K. Padung Krung Kasem
Siyaek Mahanak
Noi
Grand Palace
K. Ong Ang
July 22 Circle
Sukhumwit
Rama IV
Songwat
K. Bangkok Yai
Wongwean Yai
Charoen Krung
Trok Chan
Chao Phraya River
KEY
location grid
waterway
roadway
railway
market
SCALE
0 1
mile

Map 1



Map 2

Thonburi.[6] The remainder of the total includes new markets, old markets, some with licenses pending and others in the process of meeting public health regulations, as well as some where business customarily takes place for only a short time during the day with a minimum of physical structure. Since many of the unlicensed markets were stumbled upon by chance in the course of the fieldwork, the list is probably not complete although it is more extensive than any other available by 1970.

The present location pattern is one of markets scattered throughout both Bangkok and Thonburi, so that few people are more than half an hour's journey from a market, either by foot or by public transportation. This reflects the premium put upon freshness of perishable foods which generally are bought daily. In a situation where most families do not have refrigerated storage accessibility to a market is important.

The majority of the markets now in existence are of recent origin, and both their location and growth in overall numbers seem to reflect both urban areal spread and city population growth. The urban area of Bangkok and Thonburi has extended considerably, particularly within the last two decades (see Figure 1). Although it was not possible to date the establishment of markets for the whole of the period shown in Figure 1, Figure 2 illustrates what data is available.[7]

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[6]The valuable help given by the Public Health Divisions of the Municipalities of Bangkok and Thonburi is acknowledged. They not only provided lists of licensed markets, but also carried out the market seller counts that are the basis for some of the data presented in a later section.

[7]The closest approach which could be made to dating officially the existence of individual markets was by records supplied by the Public Health Divisions of the two municipalities. Those are

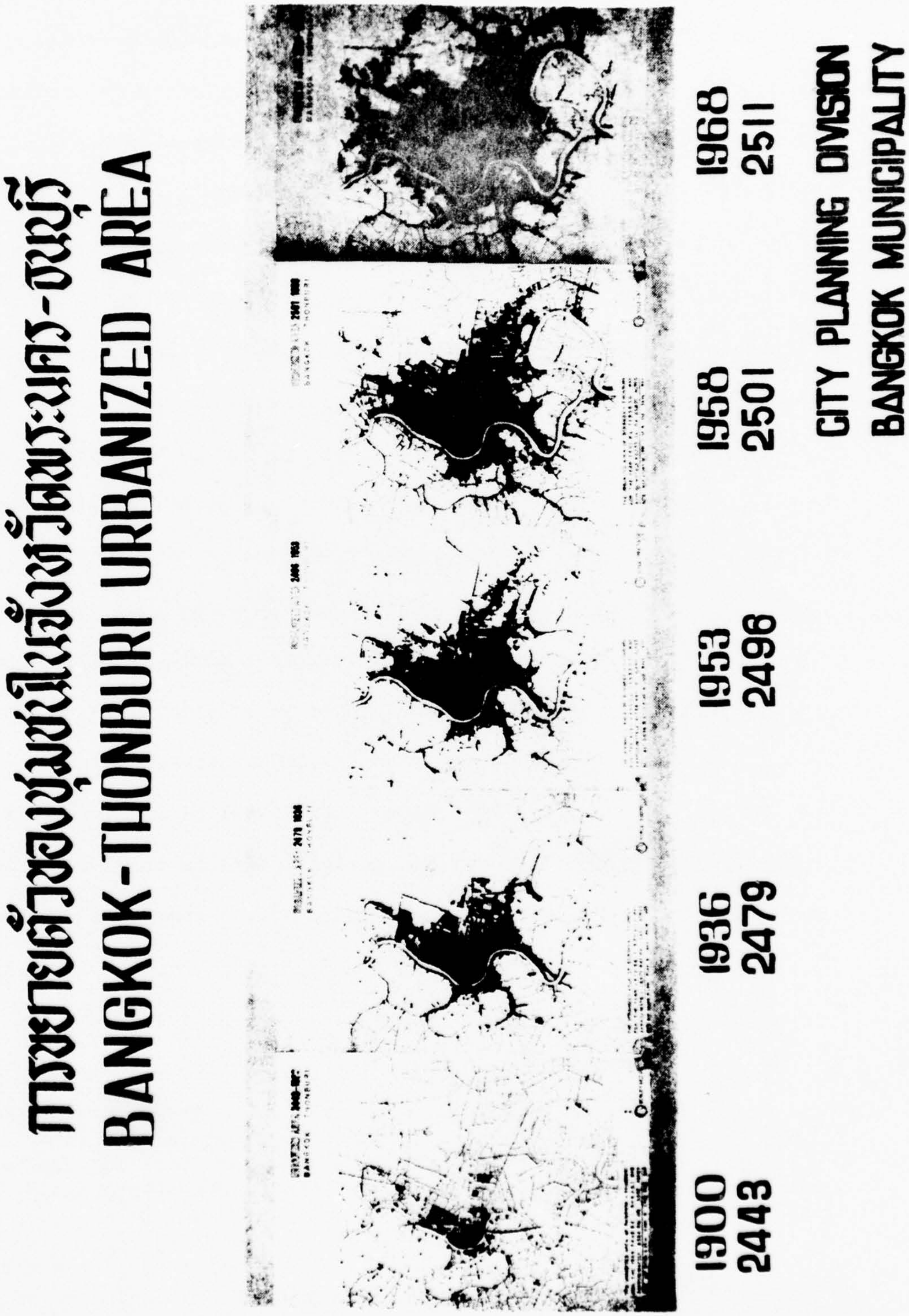
การขยายตัวของชุมชนในเขตจังหวัดพระนคร-ธนบุรี
BANGKOK-THONBURI URBANIZED AREA
1900
2443
1936
2479
1953
2496
1958
2501
1968
2511
CITY PLANNING DIVISION
BANGKOK MUNICIPALITY

Figure 1

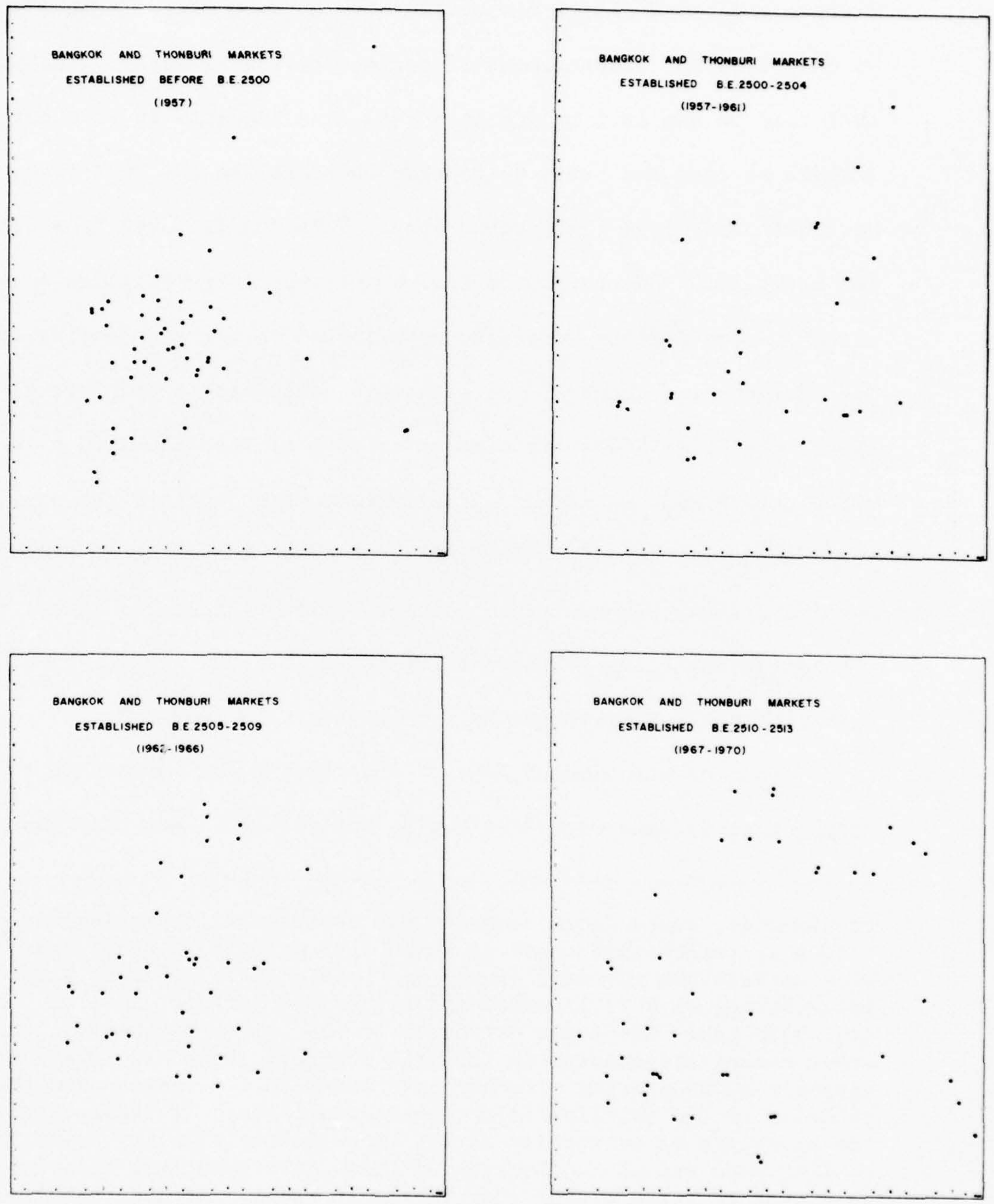

Fig. 2 DATES OF ESTABLISHMENT OF BANGKOK AND THONBURI MARKETS

Markets established prior to 1957 show a strong clustering in the central areas and only a few outliers which were often located at convenient places for transhipment of goods arriving by water. The pattern exhibited in the late 1950's shows a marked increase in road oriented markets as land was built up towards the port, in the Huai Kwang District and along Paholyothin Road. This was followed by a period in the early 1960's during which the network was largely filled in, although some markets were also established in new residential areas in both Bangkok and Thonburi. The pattern exhibited in the last period shown, the late 1960's, is similar to that of the late 1950's in that urban growth and new market establishment extended into the previously rural areas surrounding the cities such as in the areas of Lad Prao, Suthisan, south Sukhumwit and Charoen Sanitwong. At this time, there was little infilling of the pattern in established areas, which were perhaps locally over-served by a multiplicity of markets.

The orientation of most of the present day markets to roads rather than to waterways (see Map 1) reflects the fact that most of them

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problematic, since dates recorded are those on which markets were licensed, rather than those on which they actually started operating. Many markets are recorded simply as "before 1957." During the course of interviewing at both licensed and unlicensed markets, several people in each were asked for their estimates of the age of the market, and if another market had existed in the area before. There was sometimes a discrepancy between dates given by informants in the markets and those recorded by the municipalities, where available. If informants revealed the existence of an earlier market than the municipality date, the earlier date was used. Because of these discrepancies, data was arranged in groups of years rather than in single years. It must also be remembered that many markets have been undergoing a process of rebuilding and replacement over the years, not only with temporary structures giving way to permanent, but also with the marking of long operating sites by any structure at all.

are of relatively recent origin. This is particularly true of retail markets and in areas which are undergoing suburbanization. However, alignment along waterways remains important in a few parts of the cities, and it is still where land and water movements meet that the largest wholesaling markets and largest complexes handling fruit and vegetables are found.

It appears, then, that the fresh food market as an institution is still considered an important and worthwhile investment by builders in the expanding sectors of the cities as demonstrated by the construction of developments centered around markets which are not, and may never be, busy. This may be linked to the perception of that market as an integral part of a larger commercial/residential complex which makes it more attractive to potential occupiers. However, even if profitability is seen in a larger context than the return of stall rents, the presence of empty or inactive new markets in such complexes may eventually result in a change in individual builder's decisions.

Thus, the process of new market growth and location has in recent years been dynamic in its response to changes in the urban situation. It is not unreasonable to expect that as characteristics of the two cities continue to change, markets will respond also to these changes. In the future, it seems likely that the rate at which new markets have been established, and particularly that of small retail markets, might decline somewhat. A redefinition of accessibility with changes in transportation and movement patterns might also be expected to be reflected in the spatial pattern of markets as well as in the absolute numbers of markets. In addition, gradual changes in urban

population characteristics may well filter through income change to adjustments in styles of living and food tastes, thereby also affecting the overall location and growth of markets.

II. CHARACTERISTICS OF FRESH-FOOD MARKETS

Market Size

In the previous section, the growth in numbers and the distribution pattern of the fresh food markets in Bangkok and Thonburi were discussed, and it was suggested that they have reflected the recently changing distribution of the urban population quite directly.[8] However, the abstract pattern of market distribution may be interpreted in a variety of ways. In order to understand the organization and functioning of the market system of which each market is only a part, it is important to realize that the internal characteristics of markets vary substantially from one to another. One of these variations is in size.

Market size may be defined in a variety of ways. Physical area does not have much relevance for this analysis, since market buildings tend to be rather similar in size. The number of _paeng_, or stalls, in the market could also be used. However, a comparison of number of stalls and number of occupied stalls often revealed discrepancies

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[8] Little detailed information is available on the varying densities of urban population, or of its socio-economic characteristics in a form which would make correlation with market distribution meaningful. The population estimates for amphur and tambon in the municipalities as recorded by their registration offices are bedeviled by the common problems of incomplete registration and boundary changes. A comparison of populations defined by tambon boundaries with those served by individual markets, even if the latter were available, would be too forced to be especially useful.

between the estimation of local demand of the market builder and that of the food sellers. A more realistic measure of market size, then, is the number of sellers actually occupying selling space. Therefore, unless a qualification is stated, the term market size will refer to the number of sellers actively trading from stalls in the market.

Data on numbers of sellers to be found in individual markets is of necessity problematic since the numbers ebb and flow from hour to hour, and to a lesser extent, from season to season. However, the Public Health Divisions of the two municipalities were willing to have their inspectors, who regularly visit licensed markets, make counts of sellers by generalized commodity groupings.[9] Of the groupings for which counts were made, seven are considered in this study: pork, beef, fish, poultry, fruit, vegetables, and groceries. Groceries include a large variety of dried foods, canned goods and staples such as rice, noodles, sugar, salt, eggs, spices and pickles. The counts were made during December 1969 and at a time when, in the judgment of the inspectors, the markets were operating at average activity with all the regular sellers at their stalls. From this source, data is available for 112 markets in Bangkok and for 48 in Thonburi. Since three of those in Bangkok and three in Thonburi do not sell fresh food,[10] the analysis of size below refers to 154 markets. Similar data is not available for the unlicensed markets.

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[9]The municipality survey format is shown in Appendix 3.

[10]The non-food selling markets in Thonburi are Tho Rung, Bangkhe and Bang Luang. The three in Bangkok are Pahurat, Yod Bangkrabue and Nai Lert.

The number of sellers in each market, as shown in Figure 3, falls within a wide range, from over 1000 sellers to fewer than 10 sellers, and there is little size clustering. If the service functions of markets are similar and their distribution a reflection of demand, a narrower range might have been expected. In order to reduce possible error in seller counts, the markets were grouped for analysis into classes at intervals of twenty-five sellers. From these groupings, it was found that over one-third of the markets have fewer than 50 sellers, almost two-thirds have fewer than 100 sellers and over 80 percent have fewer than 150 sellers. Only a few markets have many hundreds of sellers occupying space.[11]

There are some reservations which should be borne in mind in using the size data. Quite apart from the varying accuracy of the counts taken, in some cases size is considerably underestimated, since active trading may also take place in lanes surrounding the market building as at Talat Kao, on _khlong_ as at Mahanak and in Wat grounds as at Wat Chantharam. Hawkers who do not rent _paeng_ space and whose numbers fluctuate much more than those of stall renters contribute significantly to the activity of some markets.[12] There are few markets where they are allotted space as they are at Wongwean Yai, and hawking is generally unorganized. On the whole, field experience suggests that the

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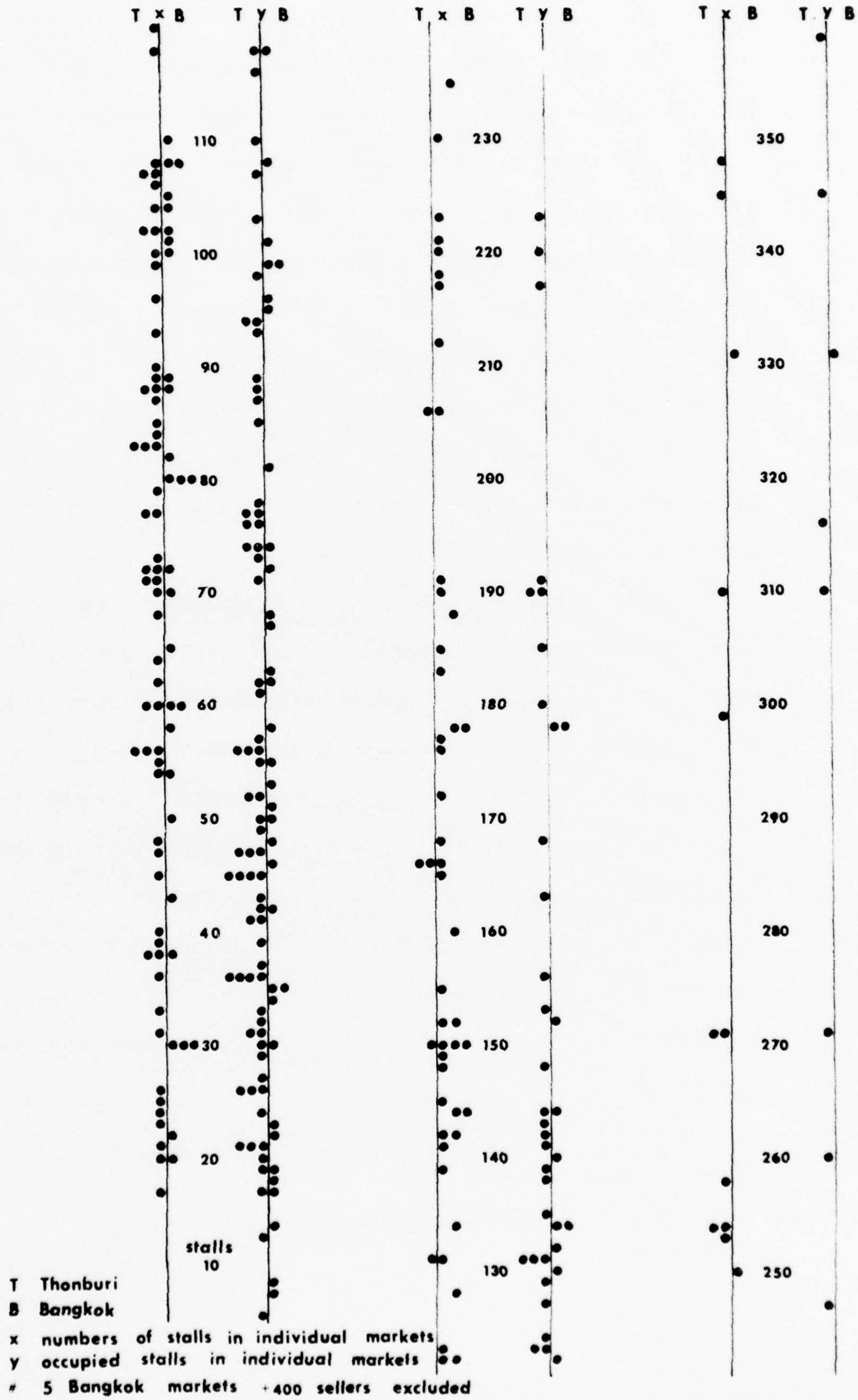
[11]Appendix 5 lists the markets in each class size and notes the number of sellers counted in that market.

[12]Markets where hawkers are noticeably active are listed in Appendix 6.

Fig. 3 BANGKOK AND THONBURI MARKET SIZE DISTRIBUTION



size data is probably a more reliable reflection of business activity in the smaller markets than in the larger markets.

There is a clear contrast between the size of markets in Bangkok and those in Thonburi. Indeed, with the exception of Wongwean Yai, all of the largest markets are in Bangkok. These large markets, which are parts of pairs or are found in complexes rather than in single buildings, are the sites of very active businesses that usually have wholesale component in addition to a retail function. As the distribution pattern of market size shown in Map 3 illustrates, these markets form a coarse, widely scattered network throughout the two cities. Their reach is often metropolitan rather than local.[13] The pattern of the numerous, and often clustered, small and medium markets remains puzzling, however, and indicates that size is only one aspect of market activity and distribution. Other internal characteristics, such as length of daily selling times, wholesale and retail function and the range of commodities offered for sale, must also be considered.

Market Occupancy

Especially within the context of any overall planning for food supply and distribution to metropolitan residents, it is important to realize that although the number of sellers present in individual markets is a useful indication of size, there is currently considerable

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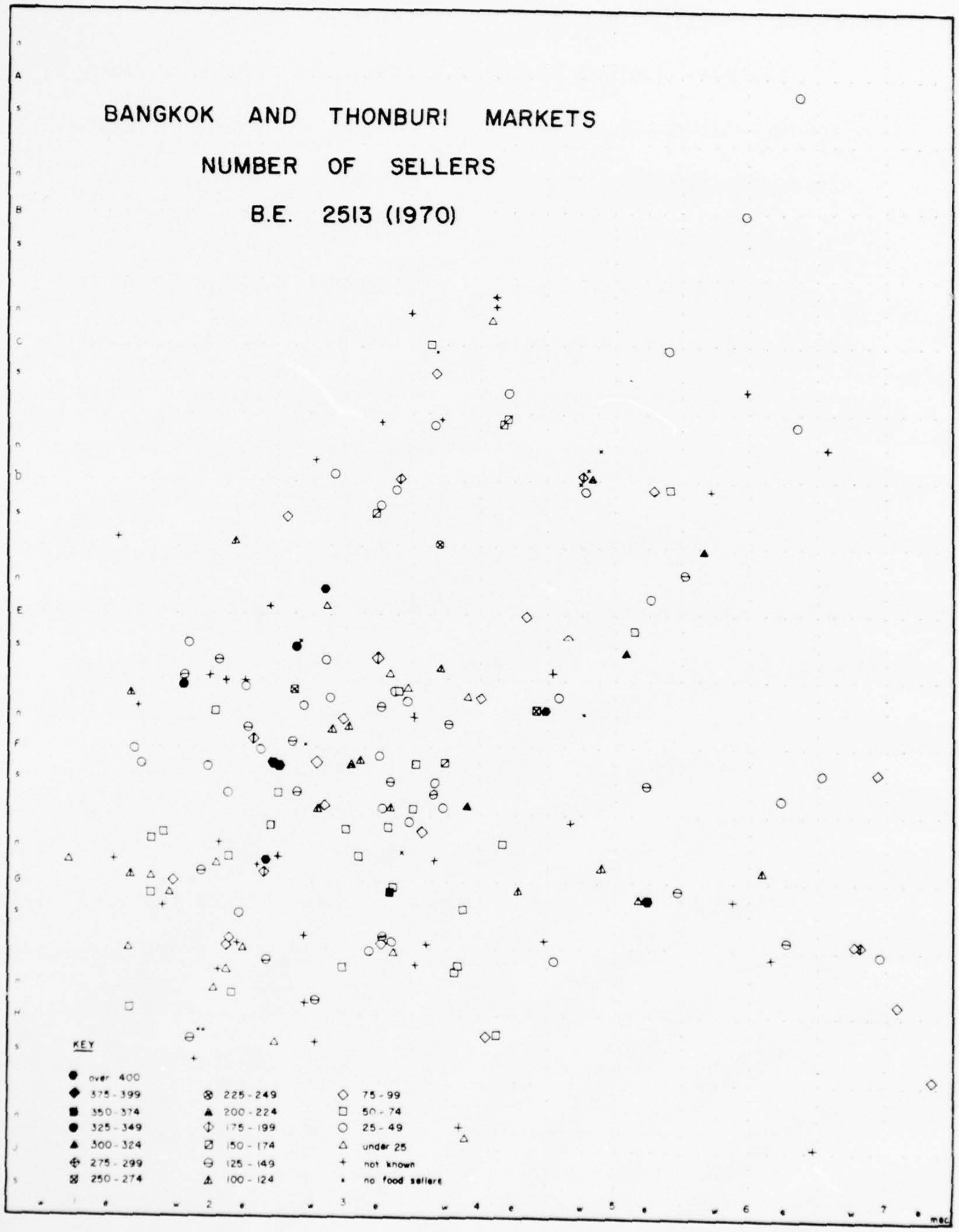
[13] This is discussed in the companion report. See Margaret E. Crawford, Urban Food Supply and Distribution: Supply Linkages of Bangkok and Thonburi Fresh-Food Markets, Technical Report No. 6, Department of Geography, University of Michigan, Research Project Nonr 1224(56), N.R. No. 388080, 1974.


BANGKOK AND THONBURI MARKETS
NUMBER OF SELLERS
B.E. 2513 (1970)
KEY
over 400
375 - 399
350 - 374
325 - 349
300 - 324
275 - 299
250 - 274
225 - 249
200 - 224
175 - 199
150 - 174
125 - 149
100 - 124
75 - 99
50 - 74
25 - 49
under 25
not known
no food sellers

Map 3

unused selling space in existing markets. It was possible to calculate occupancy rates for the licensed food-selling markets of both Bangkok and Thonburi. In Figure 3 the range of market sizes was shown for both the number of sellers present and the number of stalls available, whether occupied or not. Differences are clear and are especially marked in the smaller markets. Occupancy percentages are shown in Figure 4. As Table 1 also illustrates, almost half of Bangkok's markets are listed as full and less than one-third of Thonburi's are in the same category.

TABLE I

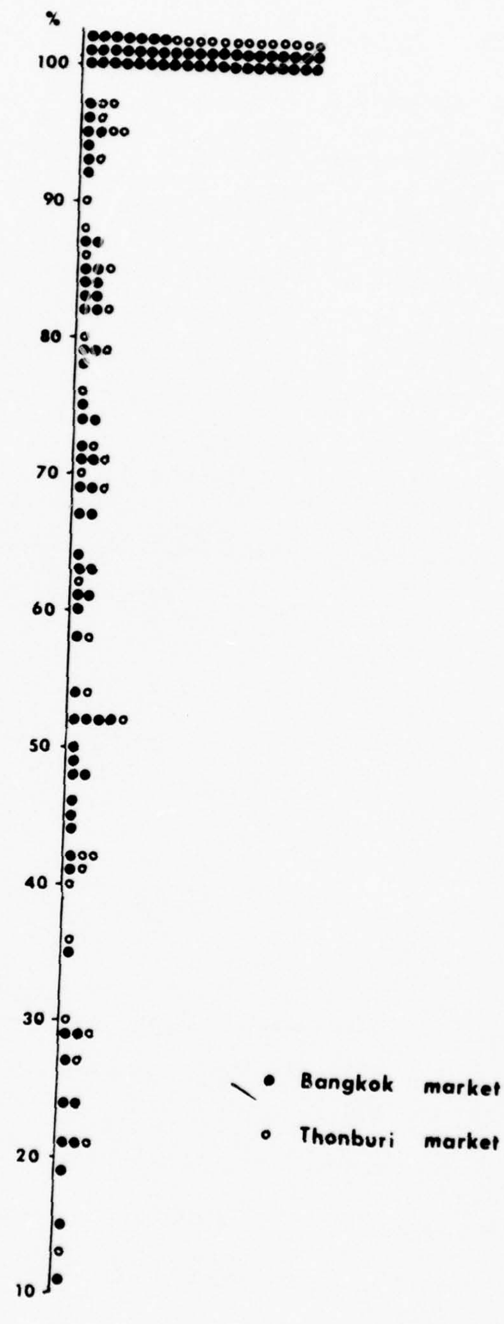
STALL OCCUPANCY RATES IN BANGKOK AND THONBURI FRESH-FOOD MARKETS, 1969-1970

Percent Occupancy	Number of Markets Bangkok	Thonburi	Total
0-24% full	7	2	9
25-49% full	13	8	21
50-74% full	21	8	29
75-99% full	21	13	34
100% full	47	14	61
Totals	109	45	154

Source: Municipality Market Seller Counts.

Within this context it should be pointed out that although a majority of the sellers in food markets trade in one of the seven commodity groupings considered here, there are some sellers who trade in other commodities.

Fig. 4 STALL OCCUPANCY IN BANGKOK AND THONBURI MARKETS

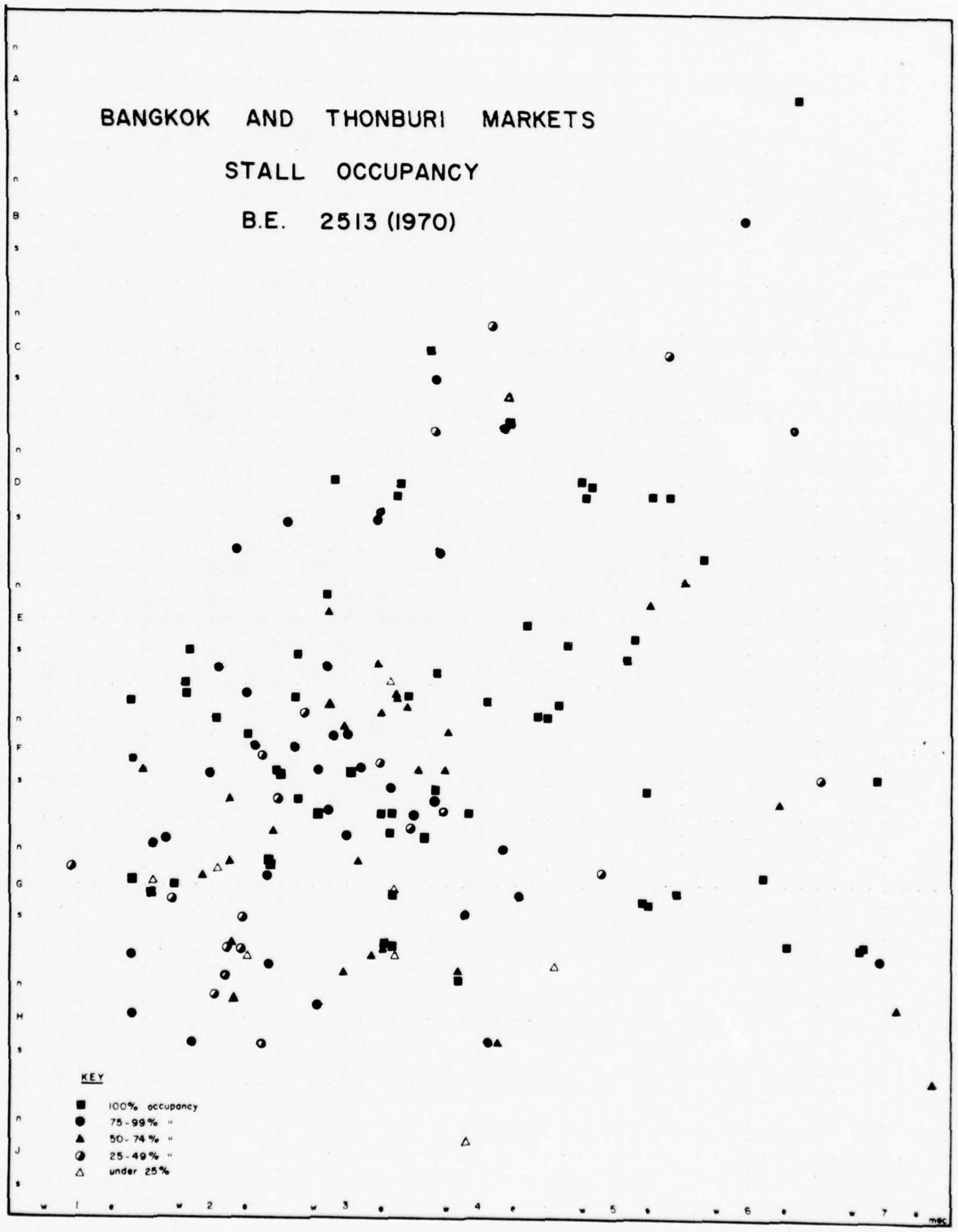


Again the general caveat in reading the data must be stated. Not all of the sparsely occupied markets are in a state of decay if seen in a slightly larger setting than the market building itself. In some largely unoccupied markets there is a lively business around the outside of the building. Sellers gave a variety of reasons for not renting stalls. Some claimed it was too difficult to raise the money for a down payment of a stall as well as for the daily rent. Others were trying out a location they were not certain enough about to commit themselves to a major investment. Still others felt the eye-catching location along lanes through which most market users must pass was the most attractive.

The spatial pattern of occupancy rates is shown in Map 4. The lack of clear patterns of locations of either full or empty markets underlines the fact that a whole range of causal factors is operating locally in the way markets as part of the larger market system adjust to change. For example, just as occupancy rates may be lower than expected from business activity, so too occupancy rates in a market operating for only a few hours a day may remain quite high where business turnover is actually rather small.

Markets' Commodity Mix

The markets were identified first as places through which a large proportion of the perishable foods used in the cities pass. The counts of sellers, from which size and occupancy rates were estimated, also recorded the commodity which was being traded, within several general categories. The categories of interest here are fruit,


BANGKOK AND THONBURI MARKETS
STALL OCCUPANCY
B.E. 2513 (1970)
KEY
100% occupancy
75-99% "
50-74% "
25-49% "
under 25%

Map 4

vegetables, fish, poultry, beef, pork and groceries.[14] These commodity groups account for a major proportion of the business of almost all talat. They are foods in widespread daily use by consumers who value freshness. The term talat itself has a popular connotation of content which is reasonably described throughout the cities by these categories, especially in retail markets.

Of the close to 14,000 fresh food sellers counted in the markets, the largest proportion, approximately 39 percent, sell vegetables, about 23 percent sell groceries, 13 percent sell fruit, 11 percent sell fish, 8 percent sell pork, 4 percent sell poultry and 3 percent sell beef. This distribution does not take into account those not selling from paeng and is therefore suggestive rather than definitive.

Although vegetable sellers are the most numerous by type of commodity in almost all of the markets, the proportion of sellers involved in the vegetable trade within any one market, as indicated by seller numbers, varies from 2 percent to 83 percent (see Figure 5). In this figure, each market is represented once in each of the commodity columns according to the percentage of the sellers in that market handling that particular commodity. The markets of Bangkok and Thonburi are shown separately but reveal very similar trends.

The predominance of vegetables and groceries sellers stands out for both cities. Few markets have less than 10 percent in the vegetable selling category and most have around 20 and 30 percent. By contrast,

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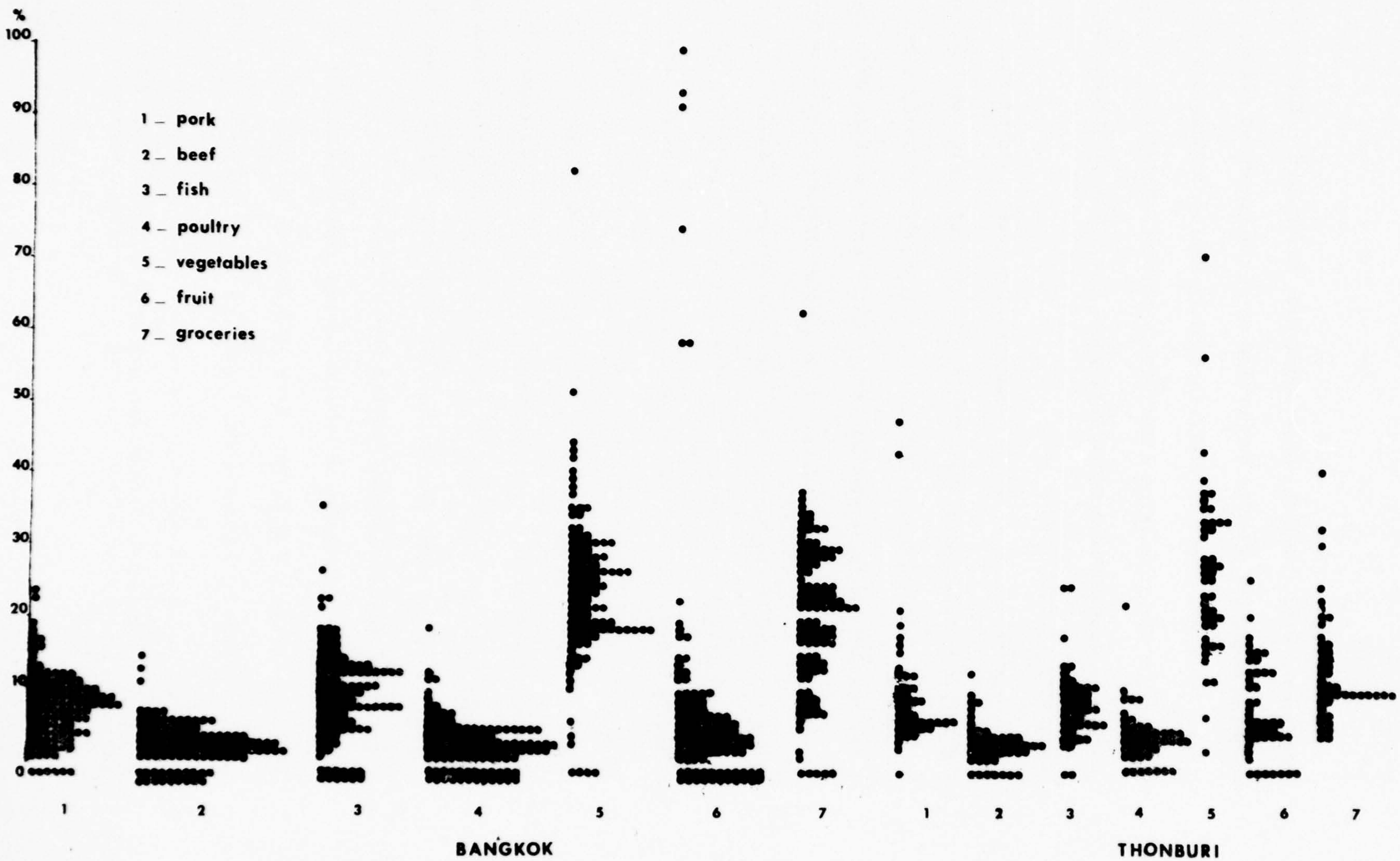
[14] Categories counted but not considered relevant in this study were flowers, cooked foods, desserts and sweets, restaurants and others.

Fig. 5 PERCENTAGES OF MARKET SELLERS BY MARKET AND COMMODITY GROUP



the small proportions of sellers in most markets dealing in beef or poultry are evident. It is rare to find a market with over 7 percent in either of these two categories. Furthermore, it was the beef, poultry and fruit categories which most often had no sellers present at the time counts were taken. In addition, fruit seems to be unusually concentrated in a few places with high percentages in, for example, the wholesale centers of Nai Lert, Yod Phiman and Wang Mahanak. Groceries are similarly concentrated at Tha Tien.[15]

One limitation in reading the previous figure is that it is not possible to see directly the relative numbers of sellers of each commodity within any one market. The large total makes description of individual markets cumbersome, but the commodity breakdown can be given for the size grouped markets used in the previous section (see Appendix 7). Thus Figure 6 shows numbers of sellers by commodity for all but the largest size groupings and also reflects closely the visual impact of markets; vegetable sellers are usually the most numerous, with the exception of some of the very smallest or largest specialized markets, and beef and poultry sellers are often few if present at all.

It is useful to consider the proportions of all the sellers of any one commodity which are found in each of the market size groups as well as total numbers. Figure 6 and Figure 7 give quite different

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[15] It would seem unwise, in view of the limitations of the survey data, to read into these results an explanation of the offerings of markets in terms of population thresholds for individual commodities. This is a tempting distraction, but extremely difficult without data on business volume, and on the relative importance of the talat as compared to other sources of food supply, be they no further than the hawkers squatting a few feet from the surveyed paeng.

Fig.6 NUMBER OF SELLERS BY COMMODITY IN SIZE GROUPED MARKETS

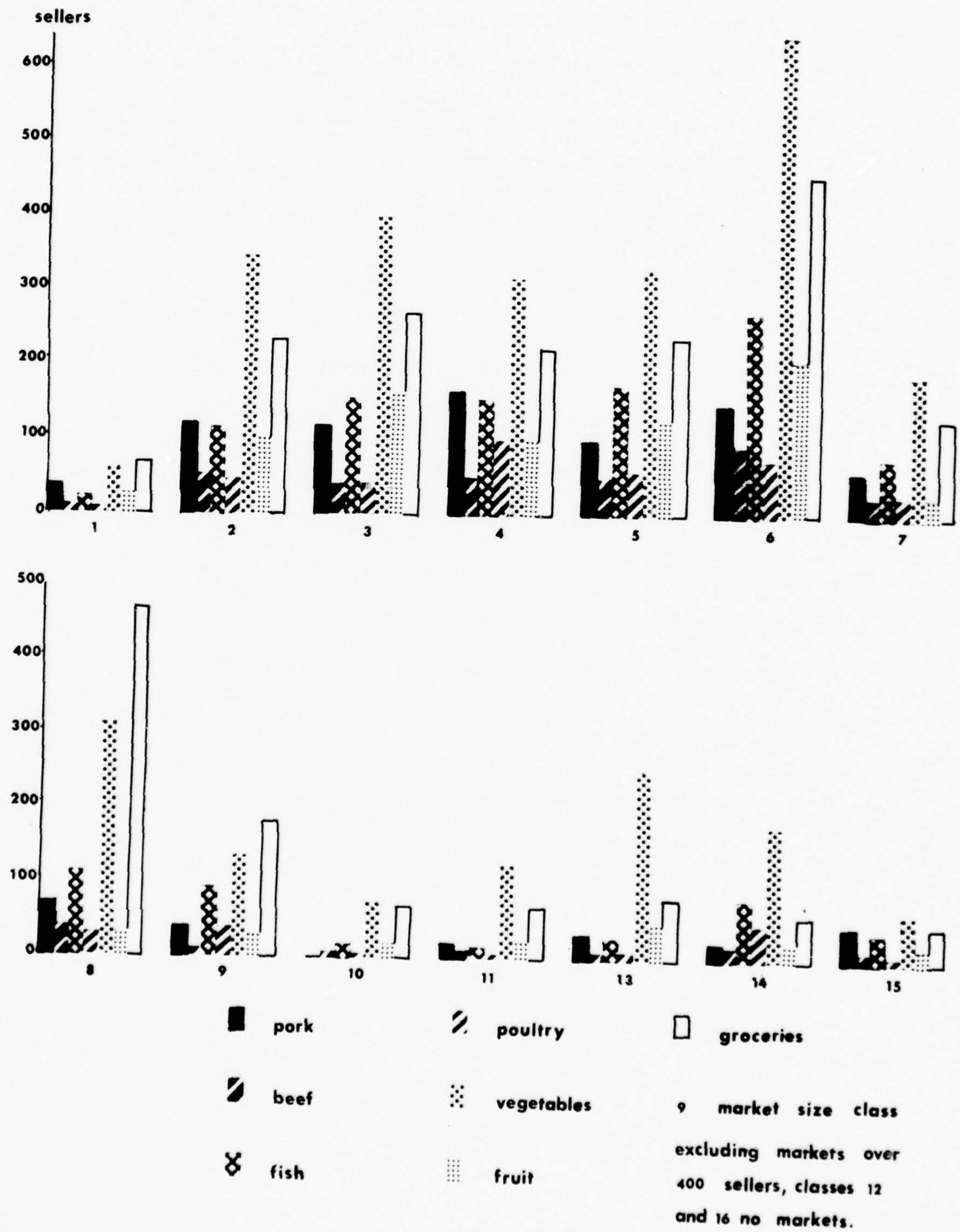
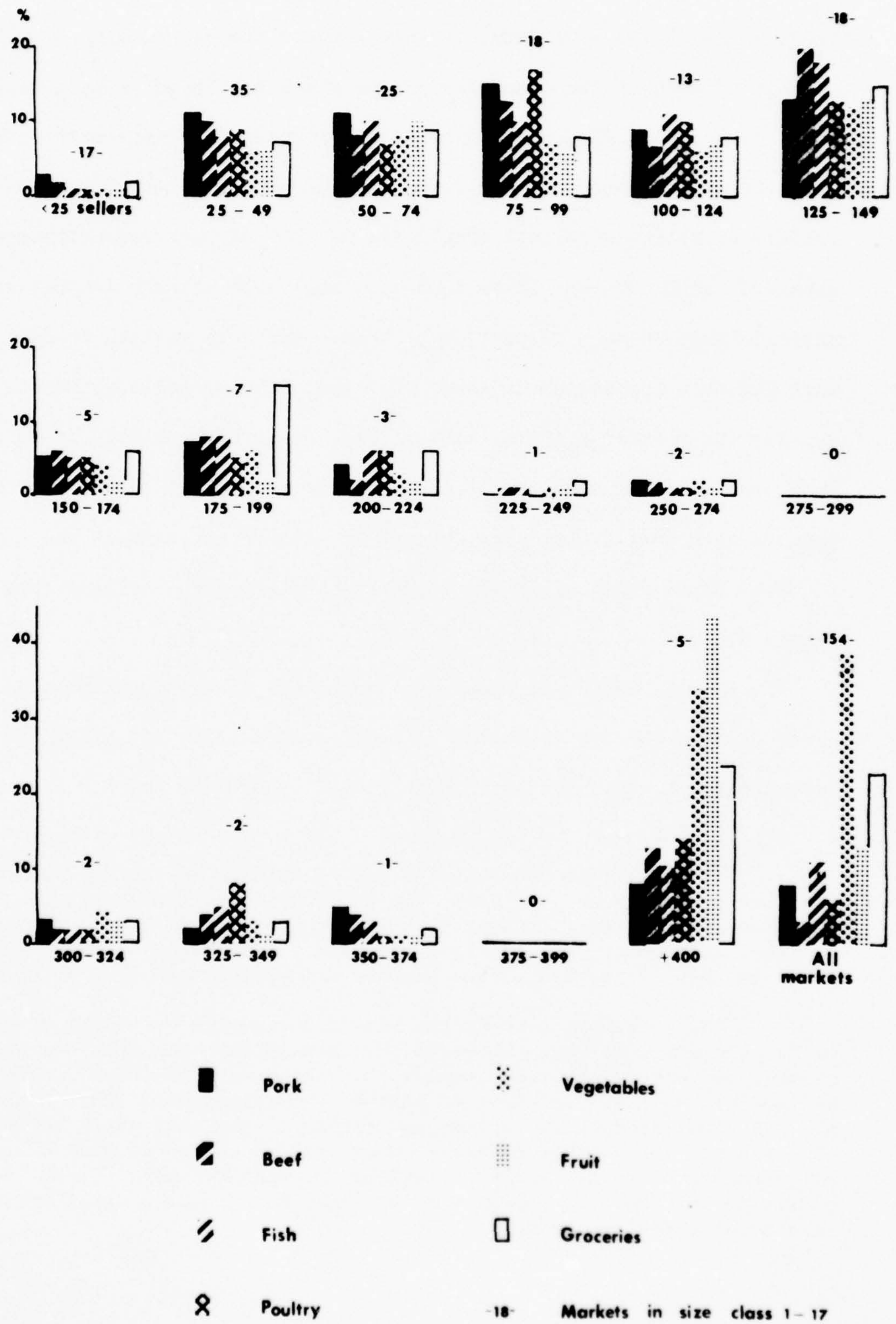


Fig. 7 TOTAL SELLER PERCENTAGES BY COMMODITY IN SIZE GROUPED MARKETS



impressions of the same data. Figure 7 shows the percentages of all the sellers of each of the commodity groups which are found in each market size class. This figure reveals the importance of markets with fewer than 150 sellers and, in particular, the eighteen markets with 125-149 sellers where 10-20 percent of all the sellers of each commodity are located. Here the very large number of vegetable sellers in this size class is reduced to a proportion of total vegetable sellers in all markets; this proportion is lower than that of beef sellers, which despite their small numbers, have a large proportion of that trade in this same group of markets.[16] All the proportions are rather low in markets with over 200 sellers, except in the largest markets where there are high percentages of fruit, vegetable and groceries sellers (see Figure 8).

In the absence of precise measurements of the quantities of goods passing through the hands of individual sellers and given the impropriety of equating fruits with fish,[17] there are obvious limits to

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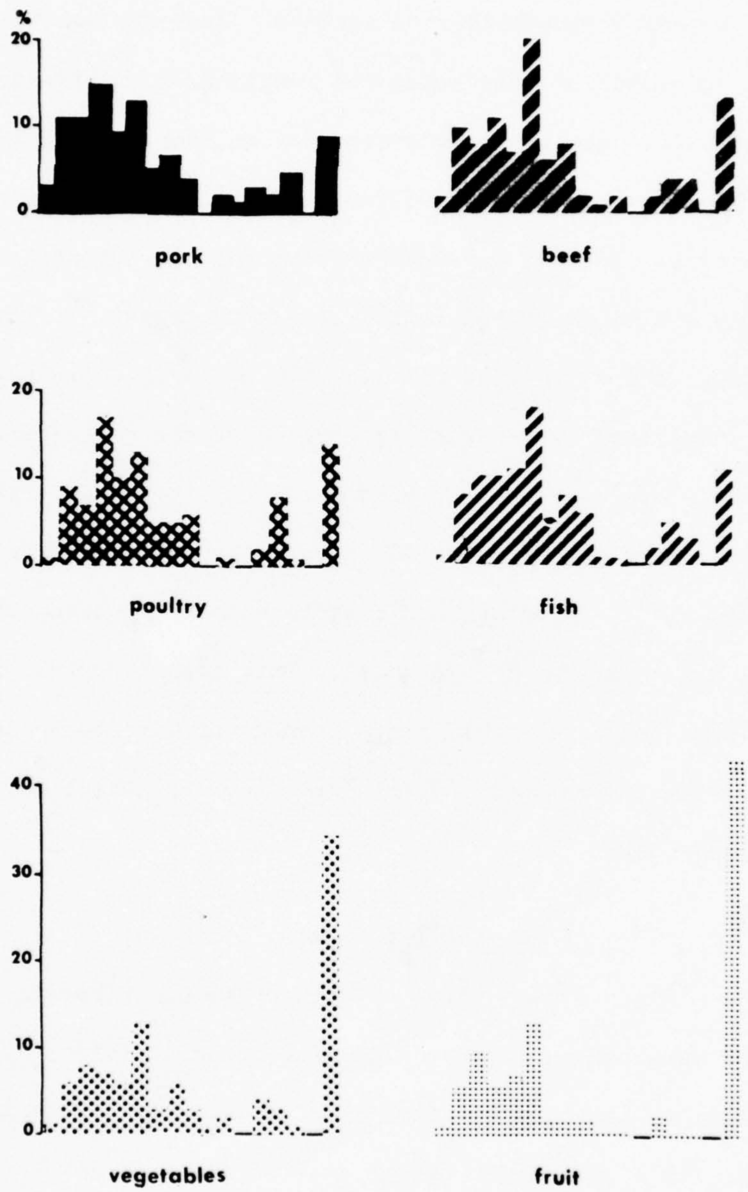
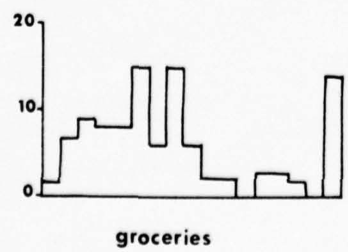
[16] Generalities conceal differences seen in day to day observation among markets serving areas whose populations' food tastes differ. For example, more beef is sold to Moslems, and Chinese buyers tend not to want fresh water fish and to prefer leafy green vegetables to the great variety of eggplants, hot peppers and spices used in Thai cooking.

[17] No information about the actual quantities by weight or value of foods passing through the markets is available. The problems of measurement are extraordinarily complex. In the course of interviewing, sellers proved most unwilling to give money estimates of their outlay and had great difficulty estimating weights of the many small quantities of different kinds of vegetables. Meat sellers tended to give a number of carcasses which was almost certainly an underestimate, due at least partly to the doubtful legality of sources, and to the general nervousness towards tax inspectors.

Fig. 8 COMMODITY DISTRIBUTION OF SELLERS IN SIZE GROUPED MARKETS





For each commodity the columns represent market size classes 1→17

an analysis of commodity composition of markets. Nevertheless, it is a useful approach to questions concerning the functioning of the markets and the organization of their supply system. Even such general analysis suggests that there are important differences among commodities rather than just among markets. This provides a focus for the investigation of the market supply system described in the companion report.[18] In that part of the study, it was revealed that for the commodities like fruit and vegetables which have such large proportions of their business in the largest markets, talat are the places where the first, and often specialized, contact between provincial supplies and the urban distribution system takes place. Other commodities tend to have these contact places in the urban area, but not in talat. This must certainly be an important consideration in generating any changes within the food supply system and in evaluating the role of the fresh food markets in bringing food to urban residents.

Market Selling Times

In any explanatory discussion of either the distribution of urban fresh food markets and their functioning or utilization, it is necessary to consider their daily times of selling. The clustering of markets shown on the location map (Map 1) and on the abstract location map (Map 2) takes on a different meaning when viewed with time periods as well as size in mind.

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[18] Margeret E. Crawford, Urban Food Supply and Distribution: Supply Linkages of Bangkok and Thonburi Fresh-Food Markets, Technical Report No. 6, Department of Geography, University of Michigan Research Project Nonr No. 1224(56), N.R. No. 388080, 1974.

The still dominant daily cycle of consumer demand for fresh food is not a simple or uniform one. It includes markets where sellers remain all day with more or less continuous business, though perhaps with morning or afternoon peak selling; markets where merchants leave their stalls deserted between morning and afternoon selling; and markets which are active for a few hours in either the morning or in the afternoon. All of these may appear on official records as all day markets.

In the course of visits and interviews in markets it was possible to categorize selling times of 166 markets (see summary sheets in Appendix 2). Excluded are old markets no longer operating, new markets as yet unoccupied, markets whose use has changed (for example, to restaurants) and markets for which no information was available. Selling times for seven markets where there were up to half a dozen sellers who had very little to sell are included on the summary sheets, although their business is minimal. In one such case, one seller was left to watch her own goods and those of four or five other sellers while they went on a pilgrimage to an island in the Gulf of Thailand to pray for better business.

The categories presented in Table 2 are largely self-explanatory and reflect major differences in the overall activity of buying and selling. No detailed attempt can be made from this data alone to specify exact numbers of selling hours or to take into account, other than generally, the timing of, for example, a morning peak which lasts from 4:00 a.m. to 6:00 a.m. as opposed to one which lasts from 7:00 a.m. to 9:00 a.m. In most cases, the morning only markets are over by 9:00 a.m. or 10:00 a.m., especially where their function is local supply for

direct use rather than for resale. However there are exceptions where wholesaling is important, as at Wat Amarin and at Wat Chantharam, which do not empty until 12:00 noon or 1:00 p.m.

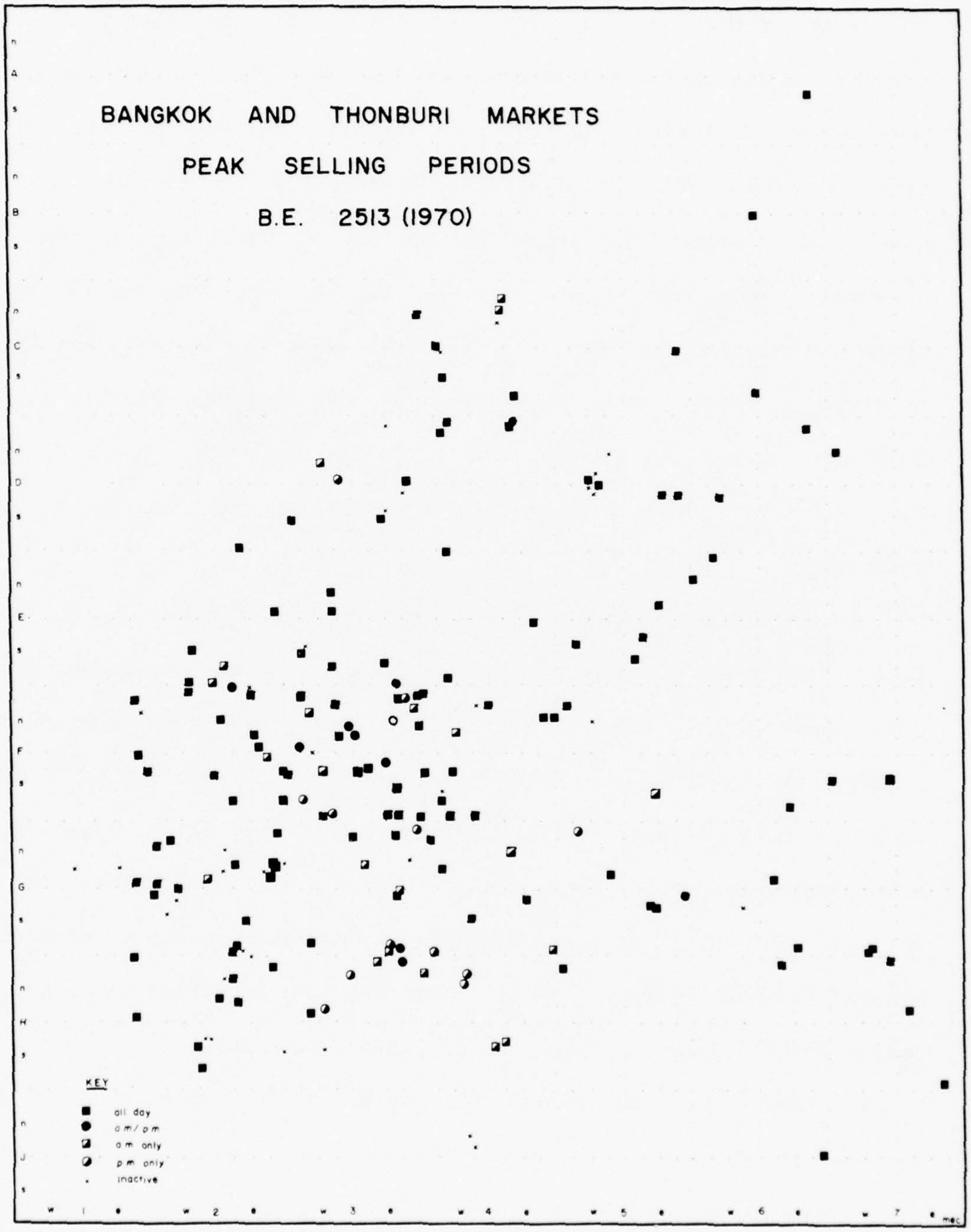
TABLE 2

SELLING TIMES IN BANGKOK AND THONBURI MARKETS

Category	Selling Time Period	Number of Markets		
		Bangkok	Thonburi	Total
1	a.m.	17	4	21
2	p.m.	8	3	11
3	a.m./p.m.	11	1	12
4	all day	83	39	122
4a	" + a.m. peak	18	3	21
4b	" + p.m. peak	29	14	43
4c	" + a.m. and p.m. peaks	36	22	58

Source: Interviews in markets.

The importance of considering temporal aspects of selling in a discussion of the pattern of market distribution and adjustment to demand is shown further on Map 5. For example, the cluster of markets at the junction of Paholyothin Road and Suthisan Road, known locally as Saphan Kwai, is reduced from five to two when inactive markets are withdrawn. Similarly in the Trok Chan area which has a large number of markets where potential customers seem too few, there are in fact no all day markets, and the sellers move from place to place on a half-day


BANGKOK AND THONBURI MARKETS
PEAK SELLING PERIODS
B.E. 2513 (1970)
KEY
all day
am/pm
am only
pm only
inactive

Map 5

basis or sell part time. However, the changing of this road from trok to thanon, or minor to major road, and its widening and paving may open land for residential development, especially along its eastern part. This may extend business in some of the eastern half-day markets, while those at the western end may continue to stagnate. In Thonburi, too, clustering is generally reduced, and several of the khlong, or canal, oriented markets have become inactive. In addition, programs of slum clearance or rehousing have affected market business where population densities have been reduced and it may be a struggle to maintain all day business, for example, in such markets as Charoen Muang. How responsive the pattern of markets will be to such changes in the long run is unknown.

Morning only markets make up only about 13 percent of the total dealt with. Most of these are in Bangkok where market clustering was noted above. There are fewer afternoon markets in both Bangkok and Thonburi and their sellers often sell elsewhere in the morning.[19] In contrast, many of those selling only in the morning, which is generally a more popular shopping time, may not sell elsewhere during the rest of the day. The third category describes markets where business does not warrant the seller staying at the stall all day, but where the same seller does business in both the morning and afternoon.

Many markets do operate all day, around 70 percent of those in Bangkok and 83 percent of those in Thonburi, but the general designation

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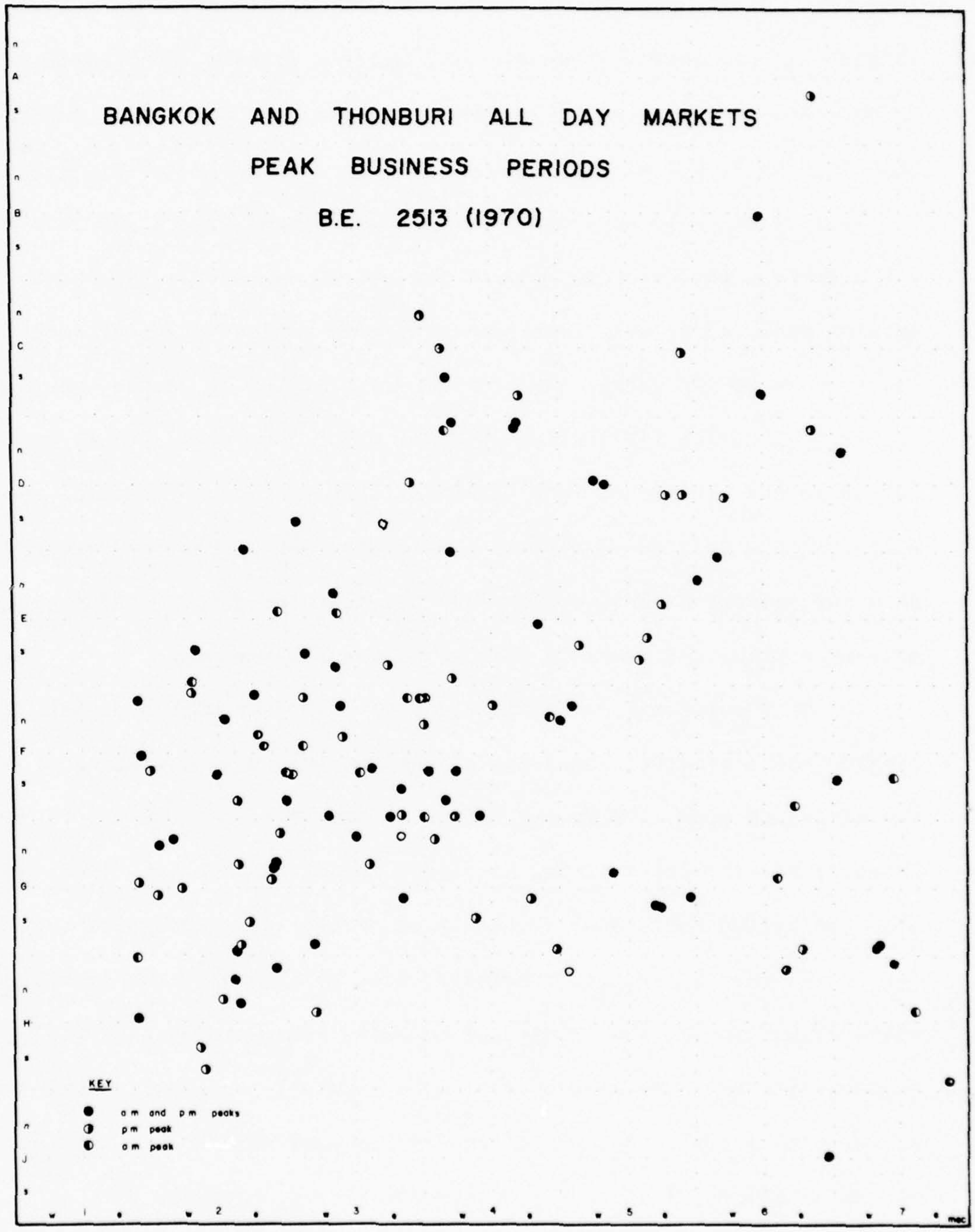
[19]Numbers involved are too small to inflate seller counts significantly.

may conceal distinctions in peak selling which are related to market function. In the course of interviewing, it turned out that many of the largest all day markets have two peak selling times a day, but that they often varied in the type of business being carried out. If the morning peak is from 4:00 a.m. to 6:00 a.m. or some such early hours, most of the selling tends to be wholesaling of commodities for resale in other urban markets that same morning or for provincial supply. A later morning peak and an afternoon peak generally reflect sales of food for direct consumption rather than for resale. Again, of course, there is the rare exception like Pakkhlong Talat which does considerable wholesaling in the afternoon, much of it for long distance provincial supply. With this distinction in mind, a second map (Map 6) has been prepared to show the all day markets subdivided into three groups: morning peak, afternoon peak, and peaks in both morning and afternoon.

Of the 122 all day markets, about half have double peaks. Bangkok has a greater proportion of the morning peaks and Thonburi of the afternoon peaks. This may be due to the fact that the majority of Thonburi markets serve direct local food needs and are relatively uncomplicated by the additional complexities of city-wide wholesale supply.

It must be stressed, however, that no claims to market homogeneity within any of the groups may be made. The morning peak group, for example, includes the largest wholesale vegetable and fruit complex in either city and also several of the smaller new markets recently opened on the outskirts of Bangkok (see summary sheets, Appendix 2).


BANGKOK AND THONBURI ALL DAY MARKETS
PEAK BUSINESS PERIODS
B.E. 2513 (1970)
KEY
a m and p m peaks
p m peak
a m peak

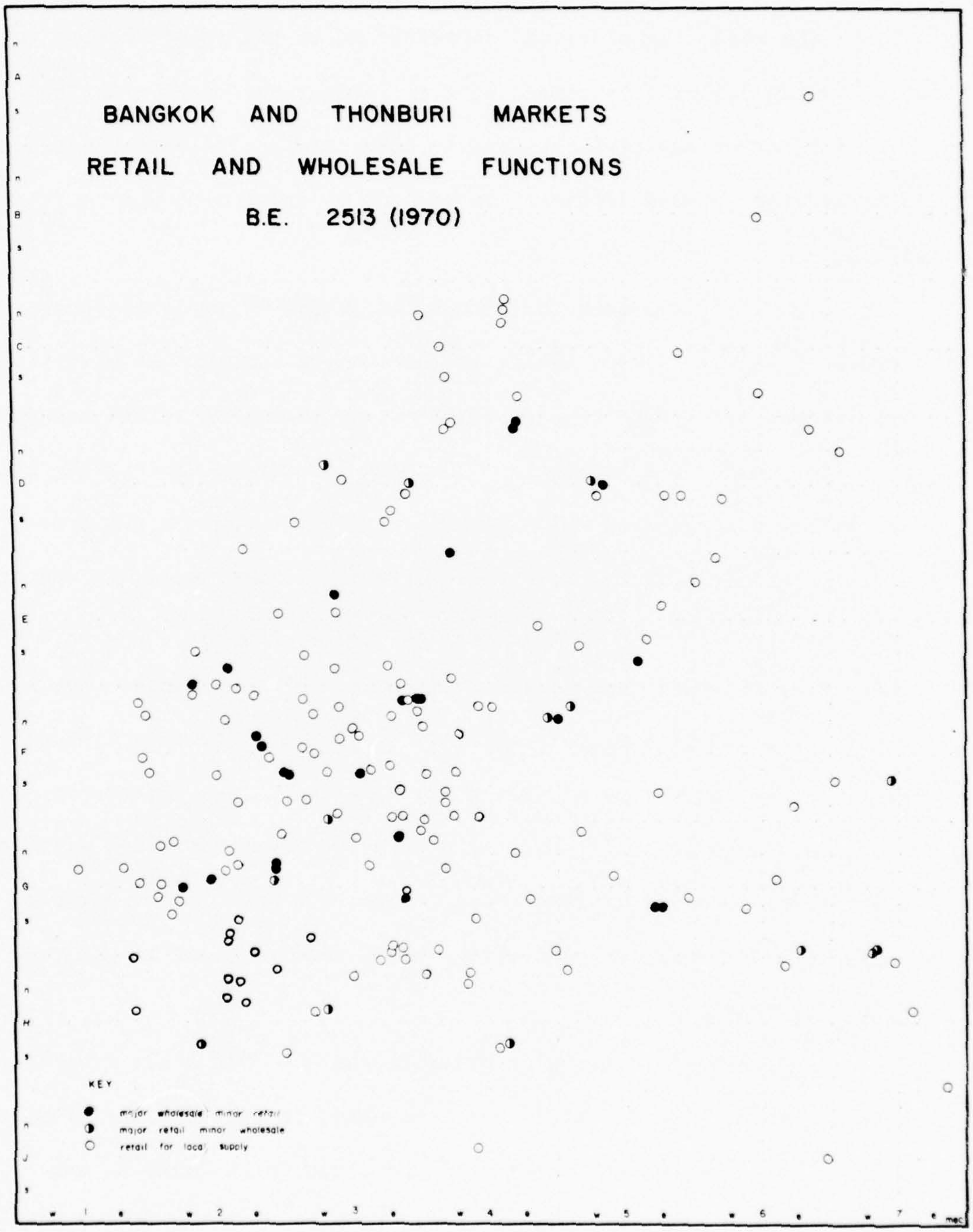
Map 6

Market Retailing and Wholesaling Functions

The foregoing sections, in referring to the importance of retail or wholesale business to market size or timing, raise the question of clarification of the terms as used in this study. The term wholesaling, in particular, proved difficult to explain to informants during interviewing.

In all of the markets, when sellers were being asked about their sources of supply and the market operations, an attempt was made to have them estimate the proportion of their sales which were retail and the proportion which were wholesale. For many merchants, wholesaling could mean simply a large sale which might be made at a reduced price to a regular customer. Often these sales were for direct immediate use or for resale only in an indirect form, such as in the food sold by restaurants or by the curry and cooked food venders of many kinds. But since one of the major aims of this study is to increase understanding of the supply system, this type of sale is considered of less importance than the sales, large or small, made to buyers for resale in other markets or to itinerant peddlers of fresh food. Thus, the distinction between wholesale and retail was made on the basis of direct use in contrast to buying for resale.

The three-fold grouping presented on Map 7 is drawn from conversations with sellers in which they were asked to estimate the proportions of their sales which would be resold and those which would be used directly. In reading the map it should be borne in mind that the terms wholesaling and retailing have been applied to markets as units. While


BANGKOK AND THONBURI MARKETS
RETAIL AND WHOLESALE FUNCTIONS
B.E. 2513 (1970)
KEY
major wholesale minor retail
major retail minor wholesale
retail for local supply

Map 7

most of the markets do include the complete range of commodities identified as of interest in the earlier section, there is some variation in commodity composition from one market to another. Specializations may be well-known to the ordinary city dweller; for example, fruit may be bought in bulk at Siyaek Mahanak or groceries at Tha Tien. But the main wholesaling center for fish does not appear on any list of talat, since it is the premises of the Fish Marketing Organization. Also, informants could not make precise measurements of proportions beyond major and minor groupings, and there are unmeasured differences in the actual quantities of different commodities passing through any of the centers.

The three groupings shown on Map 7 are local supply markets, minor wholesaling centers whose main business is local supply and major wholesaling centers. By local supply is meant service for families or other users living mostly within walking distance from the market to which they will go to buy daily or even several times a day. The second group is markets which provide mainly local supply but which also engage in some minor wholesaling. The third group is those markets where wholesaling is the major business and where retail selling is minor. The separation of the second and third groups is made because although even the largest wholesale market will have some sellers willing to make a small sale to anyone regardless of the use of the good, and although many of the retail markets, especially the outlying ones, may supply hawkers or nearby small markets, the scale and reach of the business suggested as minor is quite different from the major function.

Of those markets for which data was available, twenty-four were major wholesaling centers for the two cities, six in Thonburi and

eighteen in Bangkok. However, ten of these would more properly be considered five centers comprised of twin markets--Sapsin Bangsu/Prachuab, Wang Mahanak/Padung Krung Kasem, Pakkhlong Talat/Yod Phiman, Tha Rua Khlong Toei buildings one and two and Wongwean Yai north and south. This is especially so remembering the lack of coincidence of market building and the extent of active trading. Thus, the number of wholesale markets might be reduced to nineteen, with five in Thonburi and fourteen in Bangkok.

Seventeen markets, five in Thonburi and twelve in Bangkok, may be considered minor wholesaling centers in addition to their major function of local supply. As in the first category, this total may be reduced to sixteen, since Rung Arun and Saeng Thip markets at the junction of Sukhumwit Road and Khlong Phrakhanong operate as one. In addition, three of these minor wholesaling centers whose business is largely retail adjoin major wholesaling markets. They are Tang Ah in the Wongwean Yai complex, Si Suppharat of the Saphan Kwai group and Chalerm Lok at Pratunam. This leaves thirteen minor wholesaling centers located among the retail markets throughout the cities.

The remaining 134 markets, which comprise three-quarters of the active food-selling markets, are devoted almost entirely to local supply. Forty are located in Thonburi, and ninety-four in Bangkok. The summary table, Table 3, indicates the differences in proportion of retailing and wholesaling markets between Bangkok and Thonburi. Bangkok has three-quarters of the major wholesaling centers, while Thonburi has one quarter. The other two categories are similar, with Bangkok having over two-thirds and Thonburi less than one-third. Some of the reasons for this

TABLE 3a

RETAIL AND WHOLESALE FUNCTIONS IN BANGKOK AND THONBURI FRESH-FOOD MARKETS

	Bangkok	Thonburi	Total
Major Wholesale	18 (14)[a] 75%	6 (5) 25%	24 (19) 100%
Minor wholesale Local retail	12 (9) 71%	5 (4) 29%	17 (13) 100%
Local retail	94 70%	40 30%	134 100%

[a]Numbers in brackets are reduced totals as explained in the text.

TABLE 3b

	Major Wholesale	Minor Wholesale Local Retail	Local Retail	Total
Bangkok	14.5%	9.7%	75.8%	100%
Thonburi	11.8%	9.8%	78.4%	100%

Source: Interviews in markets, 1970.

discrepancy are explored in the companion report[20] which shows that several of the major markets in Bangkok do in fact serve Thonburi as well, but that the reverse is not true.

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[20]Margaret E. Crawford, Urban Food Supply and Distribution Supply Linkages of Bangkok and Thonburi Fresh Food Markets, Technical Report No. 6, Department of Geography, University of Michigan, Research Project Nonr 1226(56), N.R. No. 388080, 1974.

Market Stall Rents

No description of markets as selling places would be complete without considering some of the costs to sellers of doing business in one particular place rather than in another. This section discusses costs of two types: market stall rent and buying-in price. There is no standard rate for either of these in the markets of Bangkok and Thonburi. Stall rent is usually paid daily, although payment may be made for a variety of periods. Buying-in price refers to the purchase of the right to sell in a particular place for a certain period of time, the length of which may vary from one year to forever. Payment is usually made in installments.

It is difficult to assess the importance of rent costs relative to market utilization. Daily rents are responsive to the local feeling as to whether or not a particular market is both busy and a good place in which to sell, but only within very narrow limits. This responsiveness is scarcely apparent except where rents are lowest. It was found that in several less active markets, rents were not being collected at all as an incentive to keep sellers in the markets in the hope that they would become more popular with buyers. A form of negative rent may also exist in little used markets, although such cases are rare. For example, sellers may purchase a roll of lottery tickets from the market owner at a nominal costs and distribute them free to their customers who may participate in a lottery with prizes provided by the market owner. In contrast, selling places in the busiest markets are very difficult to find, but this does not necessarily show itself in extraordinarily high

daily rents, but rather in the buying-in prices and in the lack of turnover among sellers.

Daily rents do show some variation among commodities. Pork and beef are always the most expensive to sell, with daily rates usually between 5 and 10 baht.[21] The higher rates charged to sellers of beef and pork may reflect their requirements for a more elaborate style of stall which usually includes an electrical outlet for light and, with increasing frequency, one for a refrigerator as well. Fish seems to have an intermediate position in paeng cost between the meats and other commodities. In some markets, the fish paeng have metal traylike surfaces, although these are sometimes provided by the sellers themselves. Unlike sea fish, fresh water fish are generally live at the time of sale and so are kept either in basins or pails of water or else flopping around in dry trays if the time until sale is expected to be short. Fruit and vegetable sellers pay the lowest daily rents, from 1 to 5 baht, although the most common rates are 2 or 3 baht. The facilities with which they are provided are also the simplest and consist only of a plain platform of wood or concrete which is exposed by the end of a day's selling. The sellers' display containers are their own property, and in the retail markets, they are not left behind once business is over since they are required to fetch the next day's goods. Sellers of groceries usually pay rents similar to those paid by fruit and vegetable sellers, and their more elaborate display arrangements are almost always their own property.

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[21] Twenty baht (฿) are equivalent to U.S. $1.00.

The responses from sellers who were asked about their reasons for choosing particular markets in which to sell varied considerably. Some sellers were attracted to newly opening markets simply to try them out, an attraction often increased by the fact that selling is usually free for six months to two years, although in the latter case there would probably be an agreement as to buying-in price with some deposit required. Other sellers remain in low rent, though inactive, markets because they could see no alternatives. They felt that they could not compete for space where business was very good since they did not have enough capital to put down, especially when they compared themselves to some merchants who, at least by hearsay, controlled space in many markets.[22] This was suggested by some meat sellers, but only rarely by fruit or vegetable sellers. Still others seemed to consider daily rents an unimportant part of their calculations of profit or of their feelings of general satisfaction with their situation.

As mentioned earlier, there is insufficient evidence to suggest that daily rent reflects the utilization of markets in general. However, the buying-in price or deposit may be more closely related, although it is impossible to investigate this possibility systematically since a whole host of personal arrangements exists. Some are overt, others covert, and the outsider has no reliable way of knowing to which level any information refers but is sensitized by the sometimes startling different information given by more or less wary participants in an agreement.

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[22]This is not to be confused with the multi-market selling by members of the same family or by one seller during different times of the day. Examples of both of these movements are given in Appendix 8.

Several other factors also complicate analysis of data on buying-in prices. One source of obvious confusion is that the length of time for which the right is held varies considerably, making intermarket comparison exceedingly difficult. The arrangements made also very according to the circumstances current at the beginning of the time period. In any market, at any time, there are individuals who have been selling there for very different lengths of time. Furthermore, the buying-in price quoted by the owner, suggested as the original one, might in fact be operating for only a minority of the sellers, with the majority having bought the right to sell second or third hand. Selling rights are transferred often with a substantial rise in price. For example, in one market a three year period had originally cost 3,000฿ but now sells for 30,000 to 50,000฿.

A general rise in costs can be seen in markets where contracts are being renegotiated after one time period has expired. Examples of increases for a five year period are of 5,000฿ being raised to 10,000฿, and for a ten year period from 2,500฿ up to 10,000฿ and to 15,000฿, and from 400฿ up to 10,000฿-12,000฿. Especially in some newly opening markets there is a tendency to speculate. In one, for example, a ten year period was guaranteed for between 20,000฿ and 30,000฿, but within three months the resale value was up to 40,000฿. In this particular case, the large increase in value may perhaps be attributed to the immediate success of the market; it was fully occupied by sellers, located conveniently for adjacent residential areas, and was also linked to expanding suburban developments by a minibus service which, although run

independently, had made arrangements with both the market owner and the police for parking. Generally speaking, the buying-in prices in retail markets are often less than 10,000฿ or 12,000฿ for fruit, vegetable or groceries sellers and from under 15,000฿ to 20,000฿ for meat sellers. By contrast, in the wholesale markets, prices may range as high as several hundred thousand baht for the right to sell for a decade. However, it should also be pointed out that in the case of wholesale markets, discussion of buying-in prices is largely academic, since there is so very little transfer of the right to sell.

Market Utilization

It is clear from the preceding sections that no one single characteristic is sufficient to describe the variation in the activity or utilization of individual markets throughout the two cities as buying and selling places. Yet this is a most important consideration, since, for example, over-congested markets may affect the smooth functioning of the whole fresh food supply system. How to simultaneously weight individual characteristics is, of course, a difficult problem, and any index calculated from them is of necessity arbitrary. With this in mind, there would still seem to be a common sense basis for suggesting that: (1) the activity or utilization of a market place is related to the number of sellers present; (2) that a market which is fully occupied is usually surrounded by business in shophouses and lanes and is therefore more active than one which is only partially rented out; (3) that a market with a developed wholesale function is the site of more activity than a retail market otherwise similar; (4) that a market in which all the

commodity groups are sold is more active than one which offers only a few commodities for sale; and (5) that a market in which selling continues all day is more active than one in which selling takes place for only parts of a day.[23]

The derivation of a highly tentative numerical activity index on the above assumptions is described in Appendix 9. The indices range from 7 to 32, as shown in Figure 9 and the Summary Sheets in Appendix 2. While the numbers have no value *per se*, their distribution shows that there are ten very heavily used, extremely active markets. The usefulness of the index in reducing the lopsidedness of single factor analysis is shown in the composition of this group. It includes not only the expected large wholesale centers at Pakkhlong Talat and Yod Phiman, but also a scatter of large retail markets. They are markets such as Huai Kwang which serves a large local population drawn mainly from government built slum clearance housing; Bangrak, an old market which draws people from all over south Bangkok, even if they also shop in a market nearer their homes; Thewarat in the north, Tha Rua Khlong Toei in the southeast, and Yod Banglamphu which serves a dense population of local residents as well as workers returning home from the nearby government offices.

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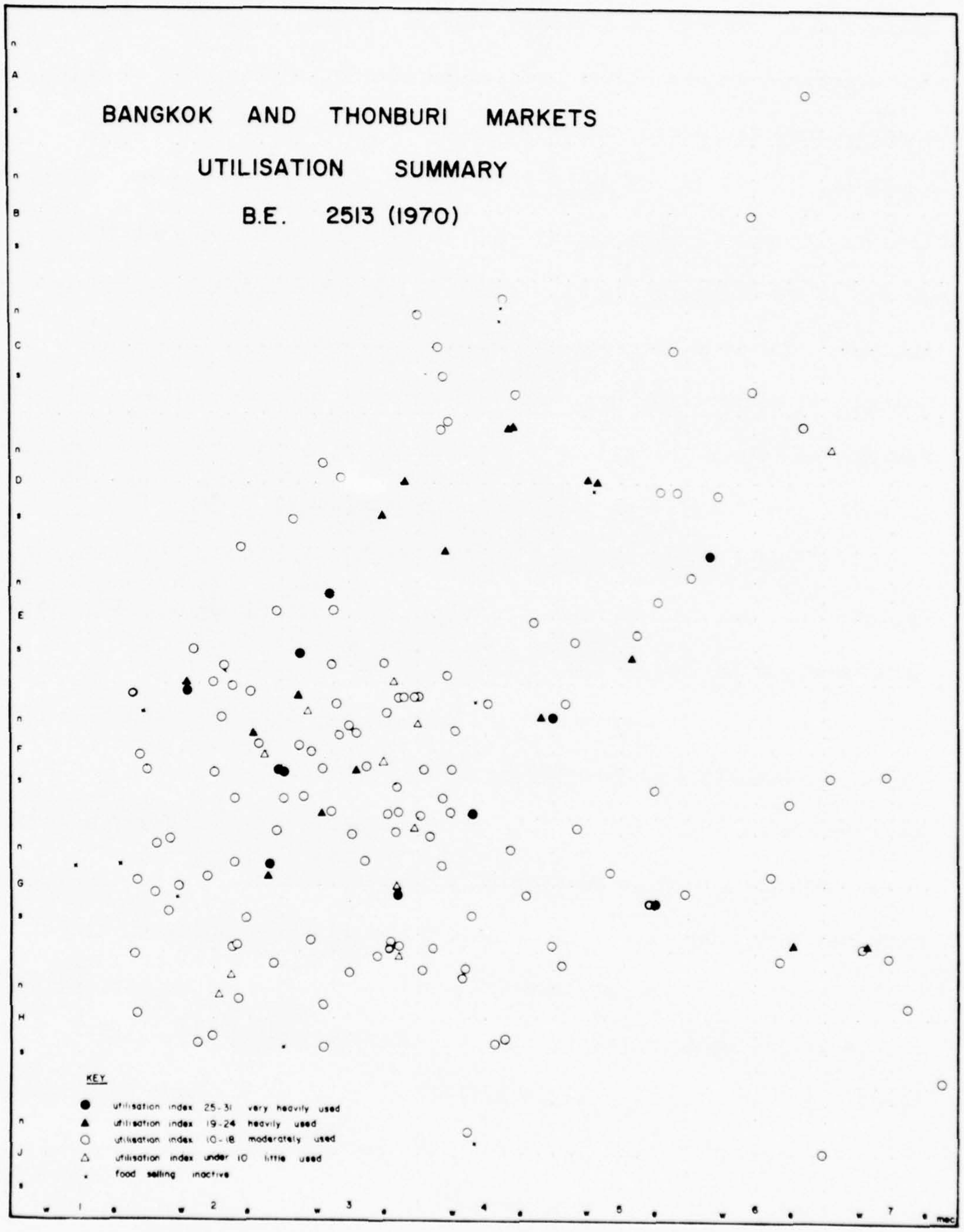
[23]In summarizing information presented here as indicating utilization or activity of markets one characteristic is omitted and does not appear in the summary sheets in Appendix 2. This is rents, since there does not appear to be a clear correlation between daily rent and market use by sellers and since data on buying-in prices or deposits is too uneven in quality and coverage to permit useful categorization. Another most useful measure is number of buyers, but no such information was available, and its collection was beyond the time and means of the present study.

Fig.9 BANGKOK AND THONBURI MARKETS ACTIVITY INDICES

A second group of nineteen markets is unmistakably active and heavily used, though to a lesser degree. As may be seen in Map 8, they are scattered throughout the cities completing the network of busy markets into the north, where Prachuab/Bangsu and Si Thai and Si Suppharat if treated as pairs would be in the first category. Tang Ah, Chalerm Lap and Bangkok Noi are all markets located adjacent to those in the first category, further reinforcing their identification as major centers. The remaining members of the group are widely scattered. The paucity of markets in, for example, parts of the built-up area of north Bangkok is related partly to the existence of large tracts of institutionally used land, much of it military residence.

A third large group of markets includes those where business activity and use is moderate. As might be expected, they are by far the most numerous in the cities, 119 in all and are interspersed among the busy and very busy markets so that few people, with the exception of those in recently opened suburban areas, are far from such a market. Spot checks at a variety of home sites suggested that consumers rarely spend more than half an hour going to market, other than to those in the busy and very busy categories. In the latter case, a longer travel time would be accepted, but at less frequent intervals. There are anomalies in the group, such as the specialized wholesaling centers selling fruit around Si Yaek Mahanak. There individual markets may have only moderate activity, but it is the khlong and lane trading which help to make this larger area a major center of activity.

The final group of little used markets includes eleven members. Some are new markets which have not been filled, like Bangrak Mai.


BANGKOK AND THONBURI MARKETS
UTILISATION SUMMARY
B.E. 2513 (1970)
KEY
utilisation index 25-31 very heavily used
utilisation index 19-24 heavily used
utilisation index 10-18 moderately used
utilisation index under 10 little used
food selling inactive

Map 8

Others are in the process of rebuilding like Chuchip, and others like Trok Chan are dying away. The distinction between this group and some markets in the previous one is slight, and it should be remembered again that the numerical values are quite arbitrary.

The index then, while included with knowledge of its drawbacks,[24] nevertheless provides insights into the functioning of the fresh food supply system operating in the two cities. In addition, in fleshing out the skeleton of market distribution through probing day to day activity and responsiveness to consumers, it becomes ever more apparent that without a smoothly functioning system of supply linkages, these numerous food selling places would not exist.

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[24]These drawbacks include an underestimation of the activity of clustered markets, imperfections in the market seller survey and all the difficulties of estimating values for unlicensed markets where no municipality market surveys were taken.

III. SUMMARY AND CONCLUSIONS

Summary

It is appropriate to begin the final section of this report on Bangkok and Thonburi fresh food markets with a recapitulation of some findings of the exploratory work completed.

In the first section it was suggested that the fresh food markets in the two cities are major foci in the provisioning of the urban population. They have increased in number as population grew, and their widening, and increasingly road oriented, distribution has paralled the expansion of the urban area. They are an accepted, and expected, part of the cityscape, accessible to most households, and through them the commonly consumed fresh foods are available on a daily basis.

But fresh food markets in the cities, although often visually similar, and true in a general way to the suggestion of uniformity which the single name, talat, gives, were found on closer investigation to vary in important ways. Their variation is important to households buying daily food, to sellers who bring goods there to do business, and increasingly to planners who hope to deal with the problems of congestion which increased activity at nodal places engenders.

The following sections proceeded to deal with major characteristics of individual markets, to explore this lack of uniformity and to

suggest a way of summarizing the activity in any of the market places as an approach to a practical problem.

An analysis of size, measured by the number of sellers, indicated unexpectedly wide differences of from less than ten to over a thousand sellers in individual markets, although more than three quarters of them have fewer than 150 sellers. Thonburi markets were found to be smaller than those in Bangkok. Bangkok also has the largest markets, all of them market complexes of several buildings with active business in surrounding shophouses and lanes.

But many of the markets of both cities are not operating up to their maximum physical capacity, as a study of occupancy of paeng shows. In fewer than 40 percent of the markets of Bangkok and Thonburi are paeng fully rented, and in almost 20 percent are less than half rented. Thus, there appears to be a discrepancy between the size of market commonly built by private owners and that which the residential densities outside the most crowded parts of the cities actually support, given the circumstances where walking access is important. Where residential densities have changed, for example, with clearance of slum housing, formerly busy markets have suffered noticeable reduction of business, and public transport by minibus service from newly developing suburbs has rejuvenated other centers.[25]

Seven major commodities were of interest in the study, but they were found to occupy quite different proportions of the close to 14,000

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[25] In Bangkok and Thonburi work and home places are often the same, and suburbanization in the sense familiar in North America is only recent.

people selling them in the licensed markets for which counts were available. Vegetable sellers accounted for 39 percent of the paeng renters, followed by groceries with 23 percent, fruit with 13 percent, fish with 11 percent, pork with 8 percent, poultry with 4 percent and beef with 3 percent. There is no reason to believe that information from unlicensed markets would change this ordering significantly. It was also found that beef, poultry and fruit were the commodities most often recorded as absent from a market, and this conformed to experience during interviewing. The majority of the sellers of all the commodities were found in the medium and small sized markets with fewer than 150 sellers, and the eighteen markets at 125 to 149 sellers actually accounted for 10 to 20 percent of the sellers of each of the groups. But in the five largest markets, all with more than 400 sellers, extremely heavy concentrations of fruit and vegetable sellers were found and very low percentages of those handling meats and fish. This may be related to function and the importance for certain commodities of the contact between provincial and urban marketing systems in talat locations. A commodity imbalance was present in only a few markets which specialize in one or two products.

Markets are generally listed officially as doing business all day, but the actual variation in selling times was found to be distinctive and to vary from periods of a few hours a day to all day. This was found to be most useful in understanding what had appeared to be clusters of too many markets in some parts of the cities, where in actual fact they were found to be complementary in selling periods rather than all being able to maintain continuous day long business. This suggests at least localized over-serving by existing markets.

The timing of peak selling was also found to be related to function, with pre-dawn selling often being for resale later in the day, while morning or afternoon peak selling in the majority of the markets was for the supplying of direct household needs. It was noted that more of the Thonburi markets had later peak selling times.

The classification of the markets by function showed that three quarters are centers drawn upon for direct household needs, with the proportion rising to about 85 percent in Bangkok and nearly 90 percent in Thonburi if those retail centers with a minor wholesaling function are added. Bangkok has more of the major wholesaling centers trading mostly for resale than Thonburi does--over 15 percent as compared to about 10 percent of the markets of the two respectively. This finding may be clarified further when it is realized that several wholesaling centers in Bangkok serve the entire metropolitan area, while those in Thonburi tend to serve only that city.

It was found, somewhat unexpectedly, that daily rents paid for selling places in the markets do not appear to be clearly linked to the activity of most markets. At the extreme of inactivity a negative rent, or no rent, may be indicative. For the majority, daily rents, while varying from commodity to commodity, with pork being the most expensive selling spot to rent and vegetables and fruits the least, fluctuated from market to market but only within narrow limits. Much more informative of the sellers assessment of the worth of space in a market is the buying-in price or deposit which they are willing to pay. But the difficulties of categorizing the information, often reluctantly given and

of doubtful reliability, proved so great that examples suggestive of ranges are given rather than a complete classification.

The lack of uniformity among the foci in the urban food distribution system, the fresh food markets, is demonstrable both in a discussion of individual characteristics and also in the summarizing theme, their activity or utilization as places of exchange. A measure of activity is difficult to define, especially in the absence of such information as buyer counts. However, the effort would seem important to make, not only as a contribution to the understanding of the operation of the markets, but also for its very practical applications in identifying points of congestion, already or potentially at problem levels for the smooth transfer of people and goods so crucial to the cities.

Thus, the information available regarding the discussed characteristics for each of the markets was rated[26] to give a numerical activity index for each market. The results were found to be grouped with a preponderance of 130 markets with low to medium indices, representing the variety of moderately active retail markets and smaller specialized markets. At none of these would the concentration of people and goods be expected to overload present facilities. These moderately active markets are found scattered throughout both Bangkok and Thonburi.

Two groups of nineteen active and busy markets and ten extremely heavily used markets were easily identified by their higher indices, and they provide a coarse scatter, so that no part of the city is more than

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[26]See Appendix 9.

about half an hour away from one of these major centers by available public transport or by walking. Such a blending of characteristics is attractive in avoiding a one aspect emphasis and is illustrated by the inclusion of extraordinarily busy congested wholesale centers like Pakkhlong Talat and Yod Phiman in the same group with Tha Rua Khlong Toei and Huai Kwang or Yod Banglamphu. The latter are partially or entirely retail markets, but so heavily used as to be seemingly close to standstill in terms of mobility at peak selling hours.

Fresh food markets with their unrestricted pedestrian access in lane-surrounded, open-sided buildings, used predominantly by women buyers who are most reluctant to breach custom by giving home addresses to a stranger, and whose reference points are not mappable streets and intersections but areas and landmarks, are difficult sites at which to conduct numerical or place specific buyer surveys. Market building area does not seem a useful indicator of customer catchment areas as has been suggested for other cities.[27] Thus, while the index used in this study is presented only as a tentative summary of activity or utilization which represents a market's popularity with both buyers and sellers, in the case of Bangkok and Thonburi, it conforms well to actual experience and should have practical planning applications.

Observations and Conclusions

The conclusions which can be drawn from an exploratory study such as this are of necessity speculative. One of the difficulties in

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[27]See, for example, A. K. Dutt, "Daily Shopping in Calcutta," Town Planning Review, XXXVII (October 1966), 207-16.

planning and carrying out the work was the lack of existing data on which to build or which would establish a time series for comparisons. Perhaps it is a reflection of the responsiveness of the existing fresh food marketing system up to the present that the provisioning of the urban population has not been the subject of more study. However, the continuing rapid population growth in the cities brings new problems in both the scale and reach of all basic urban services, including the supply of fresh food.

Urban fresh food supply has been of relatively little interest in official policy making and planning to date. The work of the Public Health Divisions of the two municipalities has been important to licensing markets, in standardizing their physical structure and in making routine inspections designed to maintain acceptable standards of hygiene in food handling. Governmental decisions have been important in requiring relocation of markets.[28] However, this was done mainly in an

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[28]These include the movement of fish wholesalers from Songwat to the Fish Marketing Organization premises in the early 1950's, the setting up of the central duck egg market, the movement of poultry wholesalers from Soi Mongkon to Soi Aree and Tha Rua Khlong Toei, the channelling of beef and pork through the municipal slaughterhouse, the movement of coconut wholesalers from Si Yaek Mahanak to Thewaret and the movement of the lamyai market from Wat Thepsirin to its present location. These changes, which all occurred within a decade or two, have not excluded the talat dominating trade in fruit and vegetables. Tha Tien, now a center of grocery trading, was a major fruit wholesaling market before Yod Phiman was built, and the wholesalers moved to that better controlled market. Before World War II and the building of Pakkhlong Talat, the largest wholesale vegetable market in the cities was said to be at Nai Lert across the street from the present Chalerm Lap market. It is now the site of cooked food stalls but of no perishable food selling. Of course, the pre-war cities were a fraction of their present size, but for those familiar with Pakkhlong Talat and Yod Phiman, it is difficult to imagine the urban fruit and vegetable supply system without them.

attempt to regulate the business operations of a particular group of people, the wholesalers, and not done necessarily with an overview of the entire fresh food marketing system which remained largely unchanged by these decisions.

A larger view might be expected in planning publications. A thirty-year master plan for Bangkok and Thonburi has existed since 1960, but unfortunately it devoted only two pages to city food markets and made recommendations reminiscent of those for automobile-oriented American cities,[29] seemingly unaware of some of the positive aspects of the existing system. Planning efforts since then have concentrated largely on updating the 1960 work, rather than assessing the relevance of its underlying assumptions to the Bangkok and Thonburi situation, and food supply remains a theme of minor emphasis.[30]

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[29]Litchfield, Whiting, Browne and Associates and the Royal Thai Government, Greater Bangkok Plan, 1959, p. 138. The 1960 plan proposed: . . . that the older type of shopping areas which consist of a market and related shop houses strung out along the street be replaced with modern integrated type of shopping center development in the newly developed and in redeveloped areas. Such new shopping centers should be automobile oriented and designed to have only 30% or less of the site actually occupied with buildings, with the rest of the area devoted to parking and landscaping. . . . Wholesale facilities are dispersed and poorly located with respect to distribution over the present street system; and in addition they are inadequate in size to handle the anticipated additional demand for produce which the growing population of the area will generate. It is recommended that all except the fish and meat wholesaling facilities be consolidated into one major facility which would have direct access to the major street system and to the river and major khlong network for incoming and outgoing goods.

[30]See L. Sternstein, Planning the Developing Primate City: Bangkok 2000, made up of three papers which summarize the work of Thai planners in the last decade. They are: Department of Town and Country Planning, Report on the First Revision of the Plan for the Metropolitan Area: Arporn Chancharoensook (Bangkok Municipality City Planning Division), Memorandum Describing Activities under the

This study attempts to provide substantial detail on individual markets where the ever-changing kaleidoscopic accumulation of individual decisions to sell, rather than a manager's decision, brings activity or decay. But it also stresses strongly the importance of the markets both as nodes in the larger urban food supply system and as foci in the areal pattern of conflux of city population seeking food. While its major emphasis is on understanding the current organization and functioning of the market system, both the detail and the larger system context provide insights which may be useful to planners and which are offered here as speculative observations on the theme of change. For, of course, the markets are not immune to a variety of growing pressures, some of which became evident during day to day fieldwork. The summary attempt to categorize market utilization is useful since the ways the pressures show themselves is likely to be different in the many moderately active, predominantly household serving markets where congestion of the physical supply and distribution system is not markedly evident from their manifestations in the very active markets where maintaining mobility is a growing problem.

Pressures which are likely to be important in affecting the spatial pattern of directly household serving retail markets might include changes in consuming household desnities through either slum clearance or new low density suburban residential developments, more

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Responsibility for Planning and Proffering Advice Concerning the Future of Bangkok; An Nimmanhaeminar, Solution to the Traffic Problem in Bangkok, Thonburi and Establishment of a New National Administrative Center.

widespread separation of home and workplace, increased mobility and affluence resulting in greater spatial ranges, acquisition of consumer goods such as refrigerators and a redefinition of perceptions of quality standards and food preferences. All of these factors merit detailed investigation beyond the scope of this study. But in the course of fieldwork, there were clues that changes which make the survival of the smaller local retail markets questionable are already under way.

The home based spot checks mentioned in an earlier section provided some information indicative of potential changes in household consumer use of fresh food markets. Thus, for example, in several cases a more distant large market was the focus of shopping trips rather than a nearby smaller one which could not offer the quality, variety, and price range of the larger markets. The smaller market was only used to satisfy immediate shortages of small quantities of commonly used foods. Should the urban population become more affluent, this situation is not likely to change in favor of the only moderately active or partially occupied and often smaller markets througout the cities.

The times found being spent on travelling to market and shopping varied from half an hour round trip to one or two hours for major buying. Some shoppers delight in spending half a day about their business, but such trips then include more socializing than trading. Walking to market is the most common way in which the smaller less active markets are reached at present. The busier markets which are on bus routes are at a decided advantage, since this is an inexpensive way to reach a more distant market quickly. If too many purchases are made for a bus journey home, samlor, or motorized tricycles, can be hired. Thus, as public

transport by either bus service or, increasingly, by minibus expands into newer areas which often have only moderate residential densities, the advantage of the market within walking distance might be expected to decrease further.

In addition, it was found that families which have a refrigerator often shopped several times a week rather than daily or several times a day, which is the existing dominant pattern of market use. If demand is accumulated and the frequency of shopping trips is reduced, it might be expected that a longer journey, and a more expensive one, would be considered tolerable. While changes in socio-economic characteristics of families and in mobility may slowly change established patterns, the strength of custom should not be underestimated. At present, the families which are sufficiently affluent to afford refrigerators and automobiles and thus generate changes in markets by new shopping habits are a small minority and almost certainly also have servants through whom the familiar pattern of daily marketing is maintained.

Change is already evident in dying markets with unused stalls, in the shrinkage of business hours from all to part of the day and in the non-occupance of new markets in recently built up areas. So far, the markets facing these consumer challenges have not responded with innovations, other than the acquisition of a refrigerator at a few meat stalls, but rather have let the adjustments take its course. Sellers decide to stop selling foods or to sell elsewhere. Thus, in the future the simple multiplying of traditional talat units may be less pronounced.

Secondly, pressure on the existing fresh food supply and marketing system is not confined to the directly household serving, moderately

active markets. It is also present in those which are the most active, and often wholesaling, cetners where the channeling of supply and distribution linkages is most constricted. Both the type of business carried out by food wholesalers in Bangkok and Thonburi, many of whom are located in talat, and the constraints within which they and other sellers in the very active markets choose their locations are complex.

Pressures for change in these centers still comes only to a minor degree from changes in consumer preferences. More important are the changes in scale of demand to be handled, changes in the producing areas and changes in the connecting transportation systems. Facilities appropriate, for example, for a water borne supply system may be rigid in responding to an increase in truck traffic. Likewise, a site adequate for handling hundreds of converging traders daily can not necessarily cope with thousands. The persistence of the legally unformalized relationships the wholesalers maintain with many people over long time periods and throughout expanding production areas may also change. An analysis of these problems, all of which concern the supply system in which markets are nodes, is deferred to the companion report in which they are discussed at some length.[31]

Change is evident in the busiest markets in their increasing congestion. This report makes a contribution in identifying both present and possible future places where congestion may become an

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[31] Margaret E. Crawford, Urban Food Supply and Distribution: Supply Linkages of Bangkok and Thonburi Fresh-Food Markets, Technical Report No. 6, Department of Geography, University of Michigan, Research Project Nonr 1226(56), N.R. No. 388080, 1974.

obstacle in maintaining movement of foods through the larger system. Its findings underline the importance of maintaining the flexibility which has been a part of the existing decentralized system, rather than stressing the centralization advocated in the 1960 plan which could well exaggerate local congestion in a period of transportation development and change.

In dealing with current problems or in planning for the future, it is important not to lose sight of some positive characteristics of the existing traditional system, such as its flexibility and responsiveness to the needs of the urban population. This responsiveness can be seen in the widespread distribution throughout the cities of close to two hundred markets, over two-thirds of which serve household needs directly, thereby providing a convenient service where mobility is often limited to walking range.

The market system found in the cities has been responsive to population not only in spreading the availability of necessities, but also in its labor absorptive capacities. The markets and the way they function are not peculiarly urban. They are familiar <u>milieu</u> both to established urban residents and also to new migrants to the cities who do not need to acquire new skills in order to supplement family incomes by food selling. The labor absorptive capacity of the traditional food marketing system by accommodating a varying multiplicity of small trading operations may be very important during times of rapid urban population growth and the concomitant search for livelihood. This is especially so in a less industrialized situation where expansion is

fastest in the tertiary sector. This responsiveness should be included in any assessment of the efficiency of the traditional system.

Problems associated with the rapidity of the growth of Bangkok and Thonburi can not be ignored. One of these problems is the provision of food. This report is presented as a contribution to a better understanding of this most basic facet of servicing an urban population, and in the hope that it may provide a basis for further work which may help to avoid difficulties for the cities in the future.

APPENDICES

APPENDIX 1

ALPHABETICAL LIST OF BANGKOK AND THONBURI MARKETS WITH INDEX MAP LOCATIONS TO ACCOMPANY MAP 1

Name of Market	Location
1 Asia	C3:ne
2 Asoke Wattana	F5:se
3 Attakawee	G5:se
4 Bamrung Suk Wattana	G4:se
5 Bang Bua	A6:se
6 Bang Chak	H7:ne
7 Bangkhe	H2:sw
8 Bangkok Noi	F2:nw
9 Bang Luang	G2:nw
10 Bang Na Nok	J6:ne
11 Bang Or	D3:ne
12 Bang Phlat	D3:nw
13 Bang Pho	C4:sw
14 Bangrak Mai	G3:se
15 Bangrak Kao	G3:se
16 Bang Saen	C4:sw
17 Bang Sakae	G2:sw
18 Bang Saothong	F1:se
19 Bang Son	C4:ne
20 Bang Son Railway	C4:ne
21 Ban Khamin	F2:ne
22 Ban Mai	H3:nw
23 Ban Moh	F3:nw
24 Bukkhalo	H2:ne
25 Chaiyamonkon	C4:nw
26 Chalerm Lap	F4:ne
27 Chalerm Lok	F4:ne
28 Chan Kasem	C4:ne
29 Chan Samoson	D3:ne
30 Chao Phraya	F3:sw
31 Charoendi (Phlu)	G2:sw
32 Charoen Muang (Wat Duang Khae)	F4:sw
33 Charoen Nakhon (Bombay)	H2:ne
34 Charoen Phat	F2:se
35 Charoen Phon	F4:nw
36 Charoen Rat	G2:ne
37 Chomthong	H1:ne
38 Chuchip	F3:ne
39 Daokhanong	H2:sw
40 Ekamai	F7:sw
41 Hiranyapradit	G2:sw
42 Huai Kwang	E6:nw
43 Hualamphong	F3:se
44 July 22nd Circle	F3:se
45 Kao Yawarat	F3:se

Name of Market	Location
46 Kasem Suk	C6:sw
47 Kiakkai Wattana	D4:nw
48 King Phet	F4:nw
49 Khlong Tan	F7:sw
50 Khlong Toei	G5:nw
51 Klang	E5:se
52 Klang Soi Thong Loh	F6:se
53 Kluai Nam Thai	G6:se
54 Kluai Nam Thai RR (Sam Yaek Rong Mu)	H6:ne
55 Kobo	H2:ne
56 Kraisak	D5:sw
57 Kromkankhaphainai (Internal Trade)	F2:ne
58 Kromphuttaret	F3:se
59 Krung Thon	D3:sw
60 Lad Prao	C5:se
61 Lad Prao Mai	D6:ne
62 Lad Ya	G3:nw
63 Lumpini	G5:nw
64 Mahanak	F3:ne
65 Makkasan	F5:nw
66 Malithong	G2:sw
67 Ming Kwan Bang Na	D5:se
68 Mochit	D5:nw
69 Morrakot	F2:se
70 Nai Lert Si Phraya	G3:ne
71 Nai Lert	F5:nw
72 Nakhon Chai Si	D3:se
73 Nam Thip	J4:nw
74 Nana	E3:sw
75 Nang Loeng	E3:se
76 Nang Loi (Bangkok)	F3:sw
77 Nang Loi (Thonburi)	F1:se
78 Nimnuan	G2:se
79 Noi	F3:se
80 Nokkrachok	F2:se
81 Nutchanet	H1:ne
82 Padung Krung Kasem	F3:ne
83 Pahurat	F3:sw
84 Pakkhlong Talat	F2:se
85 Pathumwan (Kao Saphan Luang)	F4:sw
86 Phanthulap Wattana	H5:nw
87 Pha Si Charoen	G1:ne
88 Phetburi	F4:ne
89 Phet Phloy	G4:nw
90 Phosamton	F2:sw
91 Phraram Si (Rama IV)	F4:sw
92 Phumhiran	H2:ne
93 Piraka	F3:nw
94 Plang Anuson	H2:sw
95 Phong Sap	D2:se
96 Prachachin	E4:sw
97 Prachuab	D4:ne
98 Prakob	G6:ne
99 Pranok	F2:nw
100 Prathipsin	G2:se
101 Pratunam Pha Si Charoen	G1:ne
102 Prempracha	C4:se
103 Prok Phama	G4:sw
104 Ratchawasu	D5:nw
105 Ratchawat	E4:nw
106 Rongliang Dek	F3:ne
107 Rung Arun	G7:sw

Name of Market	Location	Name of Market	Location
108 Rung Ruam Rit Im	D6:sw	140 Sirichan	H4:nw
109 Saeng Chan	G3:se	141 Sirin	G3:ne
110 Saeng Charoen	G3:se	142 Si Suppharat	D5:nw
111 Saeng Suk	G6:sw	143 Si Thai	D5:nw
112 Saeng Thip	G7:sw	144 Si Thon	G2:ne
113 Saha Wattana	F3:ne	145 Si Wanit	E5:sw
114 Sai Thai	F1:ne	146 Si Wong Thong	D7:nw
115 Saladaeng	G4:ne	147 Si Worachak	F3:ne
116 Samranrat	F3:nw	148 Si Yaek Ban Khek	G2:ne
117 Samre	G2:se	149 Si Yan	D3:se
118 Samre Mai	H2:ne	150 Soi Prachum	G4:nw
119 Samsen Nai	E5:ne	151 Sombunkit	G2:ne
120 Sam Yaek Fai Chai	F1:ne	152 Somdet Chao Phraya	F3:sw
121 Sam Yan	F4:sw	153 St Louis Sam	G4:sw
122 Sanampao	E4:se	154 Suan Luang	F4:sw
123 Sanchaophosua	F3:nw	155 Suan Phlu	G4:se
124 Santhi	H2:ne	156 Sukchai	B6:sw
125 Sap	G1:nw	157 Sutha	G2:se
126 Saphan Kwai	D5:sw	158 Suthanma	H4:nw
127 Saphan Luang	F4:sw	159 Suthisan	D5:se
128 Sapsin Bangsu	D4:ne	160 Tang Ah	G2:ne
129 Sathorn Thip	H4:se	161 Tha Dindaeng	F3:sw
130 Sathupradit	H4:se	162 Thanma (Bo Be)	F3:ne
131 Sawatdi	F3:se	163 Thanon Tuk	H2:se
132 Sawaeng Phai San	F4:sw	164 Tha Phra	G2:nw
133 Serin Sawatdi	D1:se	165 Tha Phrachan	F2:ne
134 Sesawet (west)	G2:ne	166 Tha Phrachan Mai	F2:ne
135 Sesawet (east)	G2:ne	167 Tha Phra Rong Ruam	G2:nw
136 Si Bang Pho	D4:nw	168 Tha Rua Khlong Toei (1)	G5:se
137 Si Dindaeng	E5:se	169 Tha Rua Khlong Toei (2)	G5:se
138 Silom	G3:ne	170 Tha Tien	F2:ne
139 Si Phraya	G3:ne		

Name of Market	Location	Name of Market	Location
171 Thesa	F3:nw	187 Wat Dowadung	E2:ne
172 Thewarat	E3:nw	188 Wat Phraya Krai Kao	H3:nw
173 Thewet	E3:nw	189 Wat Phraya Krai Mai	H3:nw
174 Tho Rung	H2:sw	190 Wat Sawettachat	G3:sw
175 Trok Chan	H2:ne	191 Wat Suwanaram	E2:sw
176 Trok Chan Saphan Sam	H4:nw	192 Wisetkan	E2:sw
177 Trok Wang Lang	F2:ne	193 Wongwean Yai North	G2:ne
178 Ua Aree (Soi On Nut)	H7:nw	194 Wongwean Yai South	G2:ne
		195 Worachak	F3:nw
179 Udom Suk	H7:se	196 Wuttichai	E3:se
180 Wan Chan	H3:ne	197 Yannawa	G3:se
181 Wanchat	E3:sw	198 Yod Bangkabue	D3:se
182 Wang Mahanak	F3:ne	199 Yod Banglamphu	E3:sw
183 Wat Amarin	E2:se	200 Yod Kwan	E6:nw
184 Wat Bang Phlat	D3:nw	201 Yod Phiman	F3:sw
185 Wat Chantharam (Wat Klang)	G2:nw	202 Unnamed	E5:sw
186 Wat Dok Mai	J4:nw	203 Unnamed	H3:sw

APPENDIX 2

CHARACTERISTICS OF BANGKOK AND THONBURI FRESH FOOD-MARKETS: INTERVIEW DATA SUMMARY

Key explaining information which may be read from summary sheets. The markets are arranged alphabetically.

Column

1 Map locations can be read on any of the maps using grid on Map 1. Market names and locations are also given in Appendix 1.

2 B - Bangkok location; T - Thonburi location.

3 M - Municipality Public Health Division survey completed, 1969; x - no Municipality survey.

4 S - seller interview completed, 1970; x - no seller interview.

5 P - private ownership by either individuals or companies; R - royal property; G - government departments; W - wat ownership.

6 F - fresh-food market; R - restaurants: C - cloth; B - betel leaves; F(R) - fresh-food and restaurants; F(O) - fresh food and others.

7 Class size, 1-17, according to the number of sellers in each market. The class interval is twenty-five sellers. See Appendix 5.

8 Percentage of the available <u>paeng</u> rented for selling.

9 A - active; I - inactive; a note is made if the market is not yet open, already closed, etc.

10 R - retail; W/R - wholesale and retail; W - wholesale.

11 Number of the seven commodity groups present.

Column

12 Initial of the missing commodity groups. P - pork; B - beef; Fi - fish; Po - poultry; V - vegetables; Fr - fruit; G - groceries.

13 Market selling times. 1 - morning only; 2 - afternoon only; 3 - open a few hours in both morning and afternoon but deserted in between; 4a - all day with morning peak; 4b - all day with afternoon peak; 4c - all day with peaks in both the morning and afternoon.

14 Activity index as explained in Appendix 9.

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*Estimate.

n.d No data.

- None or not relevant.

N.B.: Because a Municipality survey was completed for the market Phinitiaphatthana, it is noted in Appendix 5 and included in the data pertaining to licensed markets for market size and occupancy rates. However, neither the location nor any other specifics concerning the operation of this market could be determined, and, therefore, it has not been included in the summary sheets or elsewhere in this report.

Market	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Asia	C3:ne	B	x	S	n.d	F	3*	n.d full*	A	R	7	-	46	15
2 Asoke Wattana	F5:se	B	M	S	P	F	6	100	A	R	7	-	1	16
3 Attakawee	G5:se	B	M	S	P	F	6	100	A	R	7	-	3	17
4 Bamrung Suk Wattana	G4:se	B	x	S	n.d	F	2*	n.d	A	R	7	-	1	10
5 Bang Bua	A6:se	B	M	S	P	F	2	100	A	W/R	6	G	4b	14
6 Bang Chak	H7:ne	B	M	S	P	F	4	58	A	R	7	-	4a	14
7 Bangkhe	H2:sw	T	M	x	P	R	-	-	-	-	-	-	-	-
8 Bangkok Noi	F2:nw	T	M	S	P	F	6	100	A	W	7	-	4a	20
9 Bang Luang	G2:nw	T	M	S	P	B	-	-	-	-	-	-	-	-
10 Bang Na Nok	J6:ne	B	x	S	n.d	F	3*	n.d	A	R	6	Po	4c	13
11 Bang Or	D3:ne	B	x	x	n.d	F	not open	-	-	-	-	-	-	-
12 Bang Phlat	D3:nw	T	M	S	P	F	2	100	A	R	7	-	2	12
13 Bang Pho	C4:sw	B	M	S	n.d	F	4	79	A	R	7	-	4c	16
14 Bangrak Mai	G3:se	B	M	S	P	F	3	19	A	R	6	P	1	9
15 Bangrak Kao	G3:se	B	M	S	P	F	15	100	A	W	7	-	4c	30
16 Bang Saen	C4:sw	B	x	x	n.d	F	not open	-	-	-	-	-	-	-
17 Bang Sakae	G2:sw	T	x	S	n.d	F	5*	n.d	I	R	-	-	4c	I

Market	1	2	3	4	5	6	7	8	9	10	11	12	13	14
18 Bang Saothong	Fl:se	T	M	S	P	F	2	100	A	R	7	-	4c	15
19 Bang Son	C4:ne	B	x	S	n.d	F	1*	n.d	I	R	3	Pk B P Fr	1	I
20 Bang Son Railway	C4:ne	B	x	S	n.d	F	2*	n.d	A	R	7	-	1	12
21 Ban Khamin	F2:ne	T	M	S	P	F	3	100	A	R	7	-	4c	16
22 Ban Mai	H3:nw	B	M	S	P	F	3	61	A	R	7	-	2	11
23 Ban Moh	F3:nw	B	M	S	P	F	6	97	A	R	7	-	3	16
24 Bukkhalo	H2:ne	T	M	S	P	F	3	58	A	W/R	7	-	4c	15
25 Chaiya-monkon	C4:nw	B	M	S	P	F	3	100	A	R	6	P	4b	14
26 Chalerm Lap	F4:ne	B	M	S	P	F	11	100	A	W/R	7	-	4a	24
27 Chalerm Lok	F4:ne	B	M	S	P	F	17	100	A	W	7	-	4c	32
28 Chan Kasem	C4:ne	B	M	S	P	F	1	29	I	R	3	BFFr P	4b	I
29 Chan Samosan	D3:ne	B	M	S	W	F	8	100	A	W/R	7	-	4b	21
30 Chao Phraya	F3:sw	T	M	S	P	F	4	95	A	R	6	B	2	12
31 Charoendi (Phlu)	G2:sw	T	M	S	G	F	4	100	A	W	7	-	4b	18
32 Charoen Muang (Wat Duang Khae)	F4:sw	B	M	S	P	F	3	50	A	R	7	-	4c	14

Market	1	2	3	4	5	6	7	8	9	10	11	12	13	14
33 Charoen Nakhon (Bombay)	H2:ne	T	M	S	P	F	6	97	A	R	7	-	4c	18
34 Charoen Phlat	F2:se	T	M	S	P	F	2	71	A	R	7	-	4b	12
35 Charoen Phon	F4:nw	B	M	S	P	F	6	52	A	R	6	Fr	1	13
36 Charoen Rat	G2:ne	T	x	x	n.d	F	not open	-	-	-	-	-	-	-
37 Chomthong	H1:ne	T	M	S	P	F	3	82	A	R	7	-	4c	15
38 Chuchip	F3:ne	B	x	S	P	F	1*	n.d	A	R	6	Fi	4b	9
39 Daokha-nong	H2:sw	T	M	S	P	F	6	93	A	W/R	7	-	4b	18
40 Ekamai	F7:sw	B	M	S	P	F	2	42	A	R	7	-	4c	12
41 Hiranya-pradit	G2:sw	T	M	S	P	R (F)	1	29	I	R	4	Po B P	-	I
42 Huai Kwang	E6:nw	B	M	S	g	F	13	100	A	R	7	-	4c	26
43 Hualam-phong	F3:se	B	M	S	P	F	6	85	A	R	7	-	4c	18
44 July 22nd Circle	F3:ne	B	M	S	P	F	2	45	A	R	5	Fr B	3	9
45 Kao Yawaret	F3:se	B	M	S	P	F	9	100	A	W	6	Fr	4a	22
46 Kasem Suk	C6:sw	B	x	S	P	F	2*	n.d	A	R	3	B Fi Po G	4c	11
47 Kiakkai Wattana	D4:nw	B	M	S	P	F	2	36	A	R	6	Po	4a	10
48 King Phet	F4:nw	B	M	S	P	F	1	(re-build) 100	I	R	5	FiPo	4b	I

Market	1	2	3	4	5	6	7	8	9	10	11	12	13	14
49 Khlong Tan	F7:sw	B	M	S	P	F	4	100	A	W/R	7	-	4a	17
50 Khlong Toei	G5:nw	B	M	S	R	F	5	46	A	R	7	-	4c	15
51 Klang	E5:se	B	M	S	P	F	3	100	A	R	7	-	4b	15
52 Klang Soi Thong Loh	F6:se	B	M	S	P	F	2	67	A	R	7	-	4a	12
53 Kluai Nam Thai	G6:se	B	M	S	P	F	6	100	A	W/R	7	-	4b	19
54 Kluai Nam Thai RR (Sam Yaek Rong Mu)	H6:ne	B	x	S	n.d	F	3*	n.d	A	R	7	-	4b	15
55 Kobo	H2:ne	T	M	S	P	F	1	41	A	R	6	Fr	4b	9
56 Kraisak	D5:sw	B	x	x	n.d	R	-	-	-	-	-	-	-	-
57 Kromkan-khaphai-nai (Internal Trade)	F2:ne	B	M	S	G	F	6	100	A	W	7	-	4a	20
58 Kromphut-taret	F3:se	B	M	S	R	F	5	84	A	R	5	B Po	4c	16
59 Krung Thon	D3:sw	T	M	S	P	F	4	96	A	R	7	-	4c	16
60 Lad Prao	C5:se	B	M	S	P	F	2	35	A	R	7	-	4b	11
61 Lad Prao Mai	D6:ne	B	M	S	P	F	2	41	A	R	7	-	4b	14
62 Lad Ya	G3:nw	T	M	S	P	F	3	85	A	R	7	-	4c	15
63 Lumpini	G5:nw	B	x	x	P	F	n.d	n.d	A*	R*	-	-	2	-
64 Mahanak	F3:ne	B	M	S	P	F	3	67	A	W	7	-	2	13

Market	1	2	3	4	5	6	7	8	9	10	11	12	13	14
65 Makkasan	F5:nw	B	M	S	P	F	2	100	A	W/R	6	P	4c	15
66 Malithong	G2:sw	T	M	S	P	F	3	100	A	R	7	-	4b	15
67 Ming Kwan Bang Na	D5:se	B	M	S	P	F	4	100	A	R	7	-	4b	16
68 Mochit	D5:nw	B	x	x	closed	-	-	-	-	-	-	-	-	-
69 Morrakot	F2:se	B	M	S	P	F	2	44	A	R	6	Fr	1	8
70 Nai Lert Si Phraya	G3:ne	B	M	S	P	F	3	100	A	W	1	PBFi VPoG	4a	14
71 Nai Lert	F5:nw	B	M	x	P	R	-	-	-	-	-	-	-	-
72 Nakhon Chai Si	D3:se	B	M	S	P	F	2	30	I	R	3	FiPo V Fr	-	I
73 Nam Thip	J4:nw	B	M	S	P	F	1	15	I	R	3	B Fi FrPo	-	I
74 Nana	E3:sw	B	x	x	n.d	R	-	-	-	-	-	-	-	-
75 Nang Loeng	E3:se	B	M	S	R	F	8	71	A	R	7	-	4b	18
76 Nang Loi (Bangkok)	F3:sw	B	M	S	P	F	4	94	A	R	6	B	1	12
77 Nang Loi (Thonburi)	Fl:se	T	M	S	P	F	2	72	A	R	7	-	4b	12
78 Nimnuan	G2:se	T	M	S	P	F	4	42	A	R	7	-	4c	14
79 Noi	F3:se	B	M	S	P	F	2	100	A	R	6	B	4c	14
80 Nokkra-chok	F2:se	T	M	S	P	F	3	36	A	R	6	Fr	4c	12
81 Nutchanet	Hl:ne	T	M	S	P	F	1	86	A	R	5	FiPo	4a	11
82 Padung Krung Kasem	F3:ne	B	M	S	G	F	1	100	A	W	3	P Fi Po V	4a	13

Market	1	2	3	4	5	6	7	8	9	10	11	12	13	14
83 Pahurat	F3:sw	B	M	x	P	C	-	-	-	-	-	-	-	-
84 Pakkhlong Talat	F2:se	B	M	S	G	F	17	100	A	W	7	-	4a	31
85 Pathumwan (Kao Saphan Luang)	F4:sw	B	M	S	G	R (F)	2	100	I	R	4	B Po Fr	-	I
86 Phanthulap Wattana	H5:nw	B	M	S	P	F	2	24	A	R	6	Fr	4b	10
87 Pha Si Charoen	G1:ne	T	M	S	P	F	5	100	A	R	7	-	4b	17
88 Phetburi	F4:ne	B	M	S	P	F	4	100	A	R	7	-	4b	16
89 Phet Phloy	G4:nw	B	M	S	P	F	4	100	A	R	7	-	4b	16
90 Phosamton	F2:sw	T	M	S	P	F	2	80	A	R	7	-	4c	14
91 Phraram Si (Rama IV)	F4:sw	B	M	S	P	F	2	29	A	R	5	B Fr	4b	10
92 Phumhiran	H2:ne	T	M	S	P	R (F)	1	21	I	R	4	B Po G	-	I
93 Piraka	F3:nw	B	M	S	P	F	5	84	A	R	7	-	4b	16
94 Plang Anuson	H2:sw	T	x	S	n.d	F	n.d	n.d	I	-	-	-	-	I
95 Phong Sap	D2:se	T	M	S	P	F	5	79	A	R	7	-	4c	17
96 Pracha-chin	E4:sw	B	M	S	P	F	5	100	A	R	7	-	4b	17
97 Prachuab	D4:ne	B	M	S	P	F	7	95	A	W	7	-	4c	21
98 Prakob	G6:ne	B	M	S	P	F	5	100	A	R	7	-	4a	17
99 Pranok	F2:nw	T	M	S	P	F	14	100	A	R	7	-	4b	26

Market	1	2	3	4	5	6	7	8	9	10	11	12	13	14
100 Prathip-sin	G2:se	T	M	S	P	F	2	27	A	R	7	-	4b	11
101 Pratunam Pha Si Charoen	G1:ne	T	x	S	n.d	F	n.d	n.d	I	-	-	-	-	I
102 Prem-pracha	C4:se	B	M	S	P	F	2	24	A	R	5	PoFr	4b	10
103 Prok Phama	G4:sw	B	x	x	n.d	F	n.d	n.d	A*	R*	-	-	-	-
104 Ratcha-wasu	D5:nw	B	x	S	n.d	F	(closed)	-	-	-	-	-	-	-
105 Ratcha-wat	E4:nw	B	M	S	P	F	10	82	A	W	7	-	4c	24
106 Rongliang Dek	F3:ne	B	M	S	P	F	6	64	A	R	7	-	3	15
107 Rung Arun	G7:sw	B	M	S	P	F	4	100	A	W/R	7	-	4c	18
108 Rung Ruam Rit Im	D6:sw	B	x	S	n.d	7	5*	n.d	A	R	5	FiPo	4c	15
109 Saeng Chan	G3:se	B	M	x	P	F	4	52	A	R	7	-	1	12
110 Saeng Charoen	G3:se	B	M	S	P	F	2	100	A	R	5	FiFr	3	12
111 Saeng Suk	G6:sw	B	x	S	n.d	F	n.d new	-	-	-	-	-	-	-
112 Saeng Thip	G7:sw	B	M	S	P	F	8	100	A	W/R	7	-	4c	22
113 Saha Wattana	F3:ne	B	x	S	P	F	2*	100*	A	W/R	-	-	4a	12
114 Sai Thai	F1:ne	T	x	S	n.d	F	n.d	n.d	I	R	-	-	-	I
115 Sala-daeng	G4:ne	B	M	S	P	F	3	74	A	R	7	-	1	11

Market	1	2	3	4	5	6	7	8	9	10	11	12	13	14
116 Samranrat	F3:nw	B	M	S	P	F	2	69	A	R	6	Fr	4c	12
117 Samre	G2:se	T	M	S	P	F	4	54	A	R	7	-	4b	14
118 Samre Mai	H2:ne	T	x	S	P	F	2*	n.d	I	-	-	-	-	I
119 Samsen Nai	E5:ne	B	M	S	P	F	2	71	A	R	6	Fr	4b	11
120 Sam Yaek Fai Chai	F1:ne	T	M	S	P	F	5	100	A	R	7	-	4c	18
121 Sam Yan	F4:sw	B	M	S	P	F	13	100	A	R	7	-	4c	26
122 Sanampao	E4:se	B	M	S	P	F	4	100	A	R	7	-	4c	17
123 Sanchao-phosua	F3:nw	B	M	S	P	F	11	100	A	R	7	-	4b	23
124 Santhi	H2:ne	T	M	S	P	F	1	40	A	R	3	B Fr Po G	4c	9
125 Sap	G1:nw	T	M	S	P	F	1	42	I	R	5	B Po	4c	I
126 Saphan Kwai	D5:sw	B	M	S	P	F	2	100	I	R	4	P B Po	-	I
127 Saphan Luang	F4:sw	B	M	S	P	F	6	79	A	R	7	-	4c	18
128 Sapsin Bangsu	D4:ne	B	M	S	P	F	7	100	A	W	7	-	4c	22
129 Sathorn Thip	H4:se	B	M	S	P	F	4	75	A	R	7	-	1	13
130 Sathu-pradit	H4:se	B	M	S	P	F	3	74	A	W/R	6	Po	1	11
131 Sawatdi	F3:se	B	M	S	P	F	5	100	A	R	7	-	4b	17
132 Sawaeng Phai San	F4:sw	B	M	S	P	F	3	93	A	R	7	-	4a	14

Market	1	2	3	4	5	6	7	8	9	10	11	12	13	14
133 Serim Sawatdi	Dl:se	T	x	x	n.d	n.d	n.d	n.d	-	-	-	-	-	-
134 Sesawet (west)	G2:ne	T	M	S	P	F	3	70	A	R	7	-	4b	13
135 Sesawet (east)	G2:ne	T	x	x	n.d	R	-	-	-	-	-	-	-	-
136 Si Bang Pho	D4:nw	B	x	S	n.d	F	3*	n.d	A	R	6	Po	3	11
137 Si Din-daeng	E5:se	B	M	S	P	F	9	100	A	W	7	-	4b	23
138 Silom	G3:ne	B	x	S	closed	-	-	-	-	-	-	-	-	-
139 Si Phraya	G3:ne	B	M	S	P	F	2	49	A	R	4	B Po Fr	2	7
140 Sirichan	H4:nw	B	x	S	n.d	F	7*	n.d	A	R	7	-	1	17
141 Sirin	G3:ne	T	M	S	P	F	3	62	A	R	7	-	4b	13
142 Si Supp-harat	D5:nw	B	M	S	P	F	8	100	A	W/R	7	-	4c	22
143 Si Thai	D5:nw	B	M	S	P	F	9	100	A	W	7	-	4c	24
144 Si Thon	G2:ne	T	M	S	P	F	1	13	I	R	3	B Fi FrPo	-	I
145 Si Wanit	E5:sw	B	M	S	P	F	1	100	A	R	6	Po	4b	12
146 Si Wong Thong	D7:nw	B	x	S	n.d	F	1*	n.d	A	R	6	Fi	3	8
147 Si Wora-chak	F3:ne	B	M	S	P	F	5	78	A	R	7	-	3	15
148 Si Yaek Ban Khek	G2:ne	T	M	S	P	F	3	69	A	R	7	-	4b	13
149 Si Yan	D3:se	B	M	S	P	F	7	96	A	R	7	-	4c	19
150 Soi Prachum	G4:nw	B	x	S	n.d	F	5*	n.d	A	R	6	G	1	14

Market	1	2	3	4	5	6	7	8	9	10	11	12	13	14
151 Sombunkit	G2:ne	T	x	S	n.d	F	2*	n.d	new	-	-	-	-	-
152 Somdet Chao Phraya	F3:sw	T	M	S	P	F	6	100	A	R	7	-	2	16
153 St Louis Sam	G4:sw	B	M	S	P	F	3	83	A	R	6	Po	4b	13
154 Suan Luang	F4:sw	B	M	S	P	F	7	60	A	R	6	Fr	4c	17
155 Suan Phlu	G4:se	B	M	S	P	F	5	83	A	R	7	-	4b	16
156 Sukchai	B6:sw	B	M	S	P	F	2	84	A	R	7	-	4c	14
157 Sutha	G2:se	T	x	x	n.d	F	new	-	-	-	-	-	-	-
158 Suthanma	H4:nw	B	M	S	P	F	3	69	A	R	7	-	2	11
159 Suthisan	D5:se	B	M	S	P	F	3	100	A	R	7	-	4b	15
160 Tang Ah	G2:ne	T	M	S	P	F	8	95	A	W/R	7	-	4b	20
161 Tha Din-daeng	F3:sw	T	M	S	P	F	5	100	A	W/R	7	-	4c	19
162 Thanma (Bo Be)	F3:ne	B	M	S	W	F	2	52	A	R	5	B Fr	1	I
163 Thanon Tuk	H2:se	B	M	S	P	F	1	27	I	R	3	P B PoFr	-	I
164 Tha Phra	G2:nw	T	M	S	P	F	3	76	A	R	7	-	4c	15
165 Tha Phrachan	F2:ne	B	M	S	P	F	2	81	A	R	7	-	4c	14
166 Tha Phrachan Mai	F2:ne	B	x	x	n.d	new	-	-	-	-	-	-	-	-
167 Tha Phra Rong Ruam	G2:nw	T	M	S	P	F	3	97	A	R	7	-	4c	15

Market	1	2	3	4	5	6	7	8	9	10	11	12	13	14
168 Tha Rua Khlong Toei (1)	G5:se	B	M	S	P	F	17	100	A	W	7	-	4c	32
169 Tha Rua Khlong Toei (2)	G5:se	B	M	S	P	F (0)	5	100	A	R	4	B Po Fi	4c	16
170 Tha Tien	F2:ne	B	M	S	R	F	8	87	A	W	2	P B V FiPo	4a	18
171 Thesa	F3:nw	B	M	S	P	F	2	48	A	R	7	-	1	9
172 Thewarat	E3:nw	B	M	S	R	F	17	100	A	W	7	-	4c	32
173 Thewet	E3:nw	B	M	S	G	F	1	54	A	R	6	Fr	4a	10
174 Tho Rung	H2:sw	T	M	x	P	R	-	-	-	-	-	-	-	-
175 Trok Chan	H2:ne	B	M	S	P	F	1	21	A	R	6	Fr	3	8
176 Trok Chan Saphan Sam	H4:nw	B	M	S	P	F	3	100	A	R	7	-	2	13
177 Trok Wang Lang	F2:ne	T	x	S	n.d	F	2*	100*	A	R	7	-	3	13
178 Ua Aree (Soi On Nut)	H7:nw	B	M	S	P	F	2	87	A	R	7	-	4c	14
179 Udom Suk	H7:se	B	M	S	P	F	4	52	A	R	7	-	4a	14
180 Wan Chan	H3:ne	B	M	S	P	F	2	61	A	R	7	-	1	10
181 Wanchat	E3:sw	B	M	S	P	F	2	95	A	R	6	Fr	4c	13
182 Wang Mahanak	F3:ne	B	M	S	P	F	2	21	A	W	1	P B Fi PoVG	4a	10
183 Wat Amarin	E2:se	T	M	S	W	F	6	88	A	W	7	-	1	17

Market	1	2	3	4	5	6	7	8	9	10	11	12	13	14
184 Wat Bang Phlat	D3:nw	T	x	S	n.d	F	2*	100*	A	W/R	7	-	1	13
185 Wat Chantharam (Wat Klang)	G2:nw	T	M	S	W	F	6	52	A	W	6	Fr	1	17
186 Wat Dok Mai	J4:nw	B	x	x	n.d	n.d	n.d	n.d	-	-	-	-	-	-
187 Wat Dowa-dung	E2:ne	T	x	S	W	F	2*	75*	A	R	7	-	4a	17
188 Wat Phraya Krai Kao	H3:nw	B	x	S	W	F	n.d	n.d	A	R	-	-	-	-
189 Wat Phraya Krai Mai	H3:nw	B	M	S	P	F	6	92	A	W/R	7	-	2	16
190 Wat Sawet-tachat	G3:sw	T	x	S	W	F	2*	n.d	A	R	7	-	4c	15
191 Wat Suwa-naram	E2:sw	T	M	S	W	F	2	100	A	R	7	-	4c	15
192 Wisetkan	E2:sw	T	x	S	n.d	F	2*	100*	A	R	7	-	1	12
193 Wongwean Yai North	G2:ne	T	M	S	P	F	8	100	A	W	7	-	4c	21
194 Wongwean Yai South	G2:ne	T	M	S	P	F	7	100	A	W	7	-	4c	22
195 Worachak	F3:nw	B	M	S	P	F	4	63	A	R	7	-	3	13
196 Wutti-chai	E3:se	B	M	S	P	F	1	11	A	R	3	B Fi PoFr	3	7
197 Yannawa	G3:se	B	M	S	P	F	6	100	A	R	7	-	2	16
198 Yod Bang-kabue	D3:se	B	M	S	P	R	-	-	-	-	-	-	-	-

Market	1	2	3	4	5	6	7	8	9	10	11	12	13	14
199 Yod Bang-lamphu	E3:sw	B	M	S	P	F	14	100	A	R	7	-	4c	27
200 Yod Kwan	E6:nw	B	M	S	P	F	6	63	A	R	7	-	4c	17
201 Yod Phiman	F3:sw	B	M	S	P	F	17	100	A	W	3	P B PoFi	4a	29
202 Unnamed	E5:sw	B	x	x	n.d	n.d	n.d	-	-	-	-	-	-	-
203 Unnamed	H3:sw	B	x	x	n.d	n.d	n.d	-	-	-	-	-	-	-

APPENDIX 3

MUNICIPALITY MARKET SURVEY QUESTIONNAIRE

Market

Tambon Municipal district

Owner's name
Manager's name Telephone
Land owned by market owner , rented , partnership , no payment
Covered market belongs to market owner , or
Number of permanent stalls inside the market (A)
Number of stalls added on (B)
Average number of buyers daily
Hours of operation
Special character.

Type of stall	Commodity*					
	1	2	3	—	13	Total
A						
B						
Total						

Remarks:

* 1 pork
2 beef
3 fresh fish
4 poultry
5 vegetables
6 fruit
7 grocery
8 cooked foods
9 sweets and desserts
10 flowers
11 consumer goods
12 restaurants
13 others

APPENDIX 4

MARKET SELLER INTERVIEW FORMAT

Market

Location

Interviewer
Date
Time

Commodity	Origin Season	Purchase Location and Type	Source Person	Fetch or Delivered	Transport Vehicle In

Transport Cost	Buying Frequency	Amount Bought	Selling Time Daily	Years # Selling Location	Age of Market

Selling Elsewhere	Previous Occupation	Paeng Rent Daily	Deposit Period	Paeng Type	Wholesale or Retail

Seller Sex Age	Remarks

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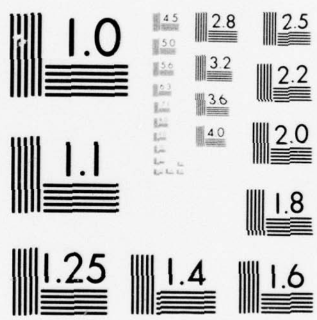
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APPENDIX 5

FOOD-SELLING MARKETS BY CLASS SIZE AND NUMBER OF OCCUPIED PAENG

Class Size 1: Fewer than 25 Sellers

Bangkok

- Nam Thip 6
- Thewet 13
- King Phet 17
- Trok Chan 19
- Padung Krung Kasem 20
- Si Wanit 21
- Thanon Tuk 21
- Wuttichai 21
- Chan Kasem 24

Thonburi

- Santhi 8
- Phinitiaphatthana 9
- Si Thon 14
- Phumhiran 17
- Sap 18
- Nutchanet 19
- Kobo 22
- Hiranyapradit 23

Class Size 2: 25-49 Sellers

Bangkok

- Pathumwan (Kao Saphan Luang) 26
- Phanthulap Wattana 26
- Saphan Kwai 26
- Tha Phrachan 27
- Phraram Si (Rama IV) 29
- Nakhon Chai 30
- Bang Bua 31
- Samsen Nai 31
- July 22nd Circle 32
- Saeng Charoen 33
- Kiakkai Wattana 36
- Lad Prao 36
- Morrakot 36
- Prempracha 36
- Wang Mahanak 37
- Wan Chan 39
- Noi 41
- Si Phraya 41
- Ua Aree (Soi On Nut) 42
- Lad Prao Mai 43
- Makkasan 45
- Ekamai 45
- Thanma (Bo Ee) 45
- Wanchat 45
- Sukchai 47
- Samranrat 47
- Thesa 47
- Klang Soi Thong Loh 49

Thonburi

- Wat Suwanaram 30
- Bang Sao Thong 34
- Bang Phlat 35
- Prathipsin 35
- Nang Loi 42
- Charoen Phat 46
- Phosamton 48

Class Size 3: 50-74 Sellers

Bangkok

- Suthanma 50
- Bangrak Mai 52
- St Louis Sam 52
- Nai Lert Si Phraya 55
- Klang 56

Class Size 7: 150-174 Sellers

Bangkok

Sapsin Bangsu 153
Suan Luang 156
Si Yan 163
Prachuab 168

Thonburi

Wongwean Yai (South) 152

Class Size 8: 175-199 Sellers

Bangkok

Nang Loeng 180
Chan Samoson 185
Si Suppharat 190
Tha Tien 190
Saeng Thip 191

Thonburi

Tang Ah 178
Wongwean Yai (N) 178

Class Size 9: 200-224 Sellers

Bangkok

Si Thai 217
Si Dindaeng 220
Kao Yawarat 223

Thonburi

--

Class Size 10: 225-249 Sellers

Bangkok

Ratchawat 247

Thonburi

--

Class Size 11: 250-247 Sellers

Bangkok

Sanchaophosua 260
Chalerm Lap 271

Thonburi

--

Class Size 12: 275-299 Sellers

Bangkok

--

Thonburi

--

Class Size 13: 300-324 Sellers

Bangkok

Sam Yan 310
Huai Kwang 316

Thonburi

--

Class Size 14: 325-349 Sellers

Bangkok

Yod Banglamphu 345

Thonburi

Pranok 331

Class Size 15: 350-374 Sellers

Bangkok

Bangrak Kao 359

Thonburi

--

Class Size 16: 375-399 Sellers

Bangkok

--

Thonburi

--

Class Size 17: Over 400 Sellers

Bangkok

Tha Rua Khlong Toei (1) 410
Chalerm Lok 450
Thewarat 649
Yod Phiman 929
Pakkhlong Talat 1,393

Thonburi

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Source: Public Health Divisions, Market Seller Survey, 1969.

APPENDIX 6

MARKETS AT WHICH SELLERS NOT RENTING PAENG ARE NUMEROUS

In many markets, the presence of hawkers who do not rent paeng contributes noticeably to their overall activity. Although it was not possible to undertake a separate or detailed survey of this group of suppliers, a list of those markets where their contribution appeared to be considerable was compiled and is given below.

In Bangkok:

- Pakkhlong Talat
- Kromkankhaphainai (Internal Trade)
- Saeng Thip/Rung Arun
- Makkasan
- Mahanak group of markets
- Thewarat
- Bangrak Kao
- Prachuab/Bangsu
- Ratchawat
- Chalerm Lok
- Talat Kao (Yawarat)
- Tha Rua Khlong Toei

Sam Yan

Klang Soi Thong Loh

Udom Suk

Khlong Toei

Along Paholyothin Road at Saphan Kwai

In Thonburi:

Wat Amarin

Pranok/Bangkok Noi

Samre/Nimnuan

Wongwean Yai

Tha Dindaeng

Daokhanong

Nutchanet

Bangkhe

Wat Bang Phlat (Mai)

APPENDIX 7

NUMBERS AND PERCENTAGES OF SELLERS IN SIZE GROUPED MARKETS BY COMMODITY

Commodity	Sellers	Market Class Size																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Vegetable	5330	60	344	401	394	333	654	194	327	139	76	128	0	231	179	67	0	1803
	%	1	6	8	7	6	12	4	6	3	1	2	0	4	3	1	0	34
Fruit	1753	26	101	167	101	130	221	28	31	31	17	25	0	52	25	19	0	779
	%	1	6	10	6	7	13	2	2	2	1	1	0	3	1	1	0	44
Fish	1546	22	116	154	155	176	276	81	116	96	20	14	0	27	85	39	0	169
	%	1	8	10	10	11	18	5	8	6	1	1	0	2	5	3	0	11
Poultry	587	6	46	39	102	61	75	31	32	38	2	7	0	11	49	7	0	81
	%	1	8	7	17	10	13	5	5	6	0	1	0	2	8	1	0	14
Pork	1087	37	122	119	168	103	148	60	73	41	0	18	0	21	36	51	0	90
	%	3	11	11	15	9	13	5	7	4	0	2	0	2	3	5	0	8
Beef	469	8	48	39	51	34	95	26	39	8	7	8	0	10	20	17	0	59
	%	2	10	8	11	7	20	6	8	2	1	2	0	2	4	4	0	13
Groceries	3151	68	236	271	238	241	461	183	470	181	73	67	0	84	88	48	0	442
	%	2	7	9	8	8	15	6	15	6	2	2	0	3	3	2	0	14
Total fresh-food sellers	13,923	227	1013	1190	1209	1078	1930	603	1088	534	195	267	0	436	482	248	0	3423

Source: Municipalities; Seller Counts. December 1969.
NB: Percentages are rounded.

APPENDIX 8

SELECTED MULTI-MARKET SELLING AND SELLER MOVEMENTS FOR DAILY SELLING

It is not unusual for sellers to trade their stock in more than one place in the course of a day, particularly in the case of sellers who trade in half-day markets. Such movements are not necessarily restricted to those between building-centered markets, as the examples selected from interview data presented below illustrate. The direction of the arrows represents the direction of seller movements.

In Thonburi:

Wat Amarin	⟶	Pranok Ban Khamin Bangkok Noi
Bang Phlat	⟵	Wat Bang Phlat Canal vender in Thonburi Road vender
Wisetkan	⟶	Wat Suwanaram Bangrak (Kao) Ban Khamin
Bangkok Noi	⟶	Pranok
Ban Khamin	⟵	Wisetkan Bangkok Noi Tha Tien
Chomthong	⟶	Sesawet (West)
Wat Chantharam	⟶	Charoendi (Talat Phlu) Sesawet Pranok

Tha Dindaeng	→	Somdet Chao Phraya
Bukkalo	→	Kobo
Chao Phraya	→	Tha Dindaeng
Wisetkan	→	Nokkrachok Ban Khamin Trok Wang Lang Wat Suwanaram

In Bangkok:

Thesa	→	Sanchaophosua
Thanma	→	Chuchip
Mahanak	←	Behind Saha Wattana
Sathorn Thip	→	Trok Chan Saphan Sam
Soi Prachum	→	Saeng Chan
Bang Son Railway	→	Many nearby
Phanthulapwattana	←	Unspecified
Bamrung Suk Wattana	→	Unspecified

It is also not uncommon for different members of one family to trade in several places throughout the Bangkok-Thonburi metropolitan area. The examples given below were drawn from conversations with market sellers in Bangkok; each entry represents information from one market seller about family trading in other markets or market areas.

Sam Yan (pork)	also	Kluai Nam Thai, Si Thai, Suan Luang
Kluai Nam Thai (beef)	"	Bangsu
" (vegetables)	"	Khlong Toei
" (poultry)	"	Attakawee
Sukchai (grocery)	"	Nongchok
Charoen Phon (pork)	"	Suan Luang
" (vegetables)	"	Rongliang Dek, Ming Kwan Bang Na, Saphan Kwai, Si Worachak

Nakhon Chai Si (pork)	also	Phlaphlachai Road market
Kiakkai Wattana (vegetables)	"	Si Bang Pho Bangkrabue
Bang Son Railway (vegetables)	"	Bangsu
" (fresh water fish)	"	Bang Pho
(sea fish)	"	Bangsu
(pork, beef)	"	House front sales
Asia (pork)	"	Kao Yawarat
" (beef)	"	Pratunam
Suan Luang (beef)	"	Bangrak, Soi Prachum
Silom (poultry)	"	Wat Khek
Soi Prachum (fresh water fish)	"	Wat Phraya Krai
(poultry)	"	Saeng Chan
(beef)	"	Bangrak, Wat Phraya Krai
Sawaeng Phai San (sea fish)	"	Bangrak
Si Phraya (vegetables)	"	Phet Phloy
(beef)	"	Phet Phloy
(pork)	"	Phet Phloy
Prachuab (pork)	"	Kasem Suk
Nang Loi (vegetables)	"	Metropolitan Bank
(sea fish)	"	Ban Moh
(sea fish)	"	Piraka
Chalerm Lap (pork)	"	Wongwean Yai
Ming Kwan Bang Na (pork)	"	Khlong Toei
(grocery)	"	Bangsu, Sanam Luang
(sea fish)	"	Suthisan, Pratunam, Si Suphharat
(pork)	"	Chan Samoson
Saphan Kwai (grocery)	"	Si Thai
Ekamai (pork)	"	Kluai Nam Thai, Bang Na, Saeng Thip, Rung Arun
" (sea, fresh water fish)	"	Pratunam, Soi On Nut
Wi Wanit (beef)	"	Si Dindaeng
Makkasan (beef)	"	Huai Kwang

Si Dindaeng (fresh water fish)	also	Si Wanit
" (pork)	"	Wuttichai
Si Thai (poultry)	"	Bang Chak, Pratunam
" (poultry)	"	Kluai Nam Thai
" (coconut)	"	Bangsu
Rung Ruam Rit Im	"	Dindaeng, Klang
Attakawee (poultry)	"	Prok Phama
Lad Prao (pork)	"	Bangsu
Lad Prao Mai (beef)	"	Bang Or
" (fish)	"	Si Wong Thong
Bang Bua (poultry)	"	Minburi
Kasem Suk (pork)	"	Prachuab
Samranrat (beef)	"	Sanchaophosua
Thesa (beef)	"	Sanchaophosua
" (fish)	"	"
" (vegetables)	"	"
Bamrung Suk Wattana (vegetables)	"	Phanthulap Wattana
" (vegetables)	"	Talat Rong Si
" (sea fish)	"	Talat Rong Si
Sirichan (vegetables)	"	Saeng Chan
Yannawa (vegetables)	"	Trok Chan
(pork)	"	"
(beef)	"	"
St Louis Sam (vegetables)	"	Wat Khek
" (pork)	"	"
" (fruit)	"	Trok Chan Saphan Sam
Suthanma (poultry)	"	Wat Khek
" (beef)	"	Trok Chan Saphan Song
Phanthulap Wattana (beef)	"	Sathorn Thip
(sea fish)	"	Bamrung Suk Wattana
Trok Chan Saphan Sam (sea fish)	"	Sathorn Thip
" (pork)	"	Wan Chan
" (poultry)	"	Wan Chan

Sathupradit (pork)	also	Lumpini
(beef)	"	Wat Prok Phama
(sea fish)	"	Trot Chan Saphan Sam
(fruit)	"	"
Sathorn Thip (vegetables, fruit)	"	Trok Chan Saphan Sam
" (fruit)	"	"
Ban Mai (pork)	"	Trok Chan
" (beef)	"	Bangrak
Bangsu (beef)	"	Bang Son Railway
Saeng Charoen (vegetables)	"	Yannawa
Wan Chan (vegetables)	"	Saeng Chan
" (pork)	"	"
Chan Samoson (beef)	"	Ratchawat, Si Yan

APPENDIX 9

DERIVATION OF THE MARKET UTILIZATION INDEX

For licensed markets, components (1), (2) and (4) of the utilization index mentioned on pages 48-49 were derived from information available from the market surveys conducted by the Public Health Divisions of the two municipalities. Components (3) and (5) were derived wholly or in part from interviews. For unlicensed markets, estimates for all components were made from data gathered during fieldwork.

(1) Size. Class sizes are represented by their numerical ordering, 1-17.

(2) Occupancy. Markets were rated in the following manner:

4 = 100 percent occupied
3 = 75-99 percent occupied
2 = 50-74 percent occupied
1 = less than 50 percent occupied

(3) Function. Wholesale markets were rated 3, wholesale/retail 2 and retail 1.

(4) Commodity Mix. Markets in which all seven commodity groups are sold were rated 4, those in which five or six were sold 3, those in which three or four were sold 2 and those in which one or two were sold 1.

(5) Selling Times. Markets were rated in the following manner:

4 = All day markets with two peaks
3 = All day markets with one peak
2 = Morning and afternoon markets
1 = Half-day markets

The five values were then summed to give an activity index for each market.

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ABSTRACT

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